GZA
GeoEnvironmental, Inc.

Engineers and
Scientists

VIA EMAIL

August 24, 2012
File No. 04.0029307.00

Ms. Amy Daigneault
Pretreatment Coordinator
Lowell Regional Wastewater Utility
451 First St. Blvd. (Rte 110)
Lowell, Massachusetts 01850

Re: Monthly Self Monitoring Report
July 2012
Merrimack Station
Public Service Company of New Hampshire
Bow, New Hampshire

380 Harvey Road
Manchester
New Hampshire
03103-3347
603-623-3600
FAX 603-624-9463
www.gza.com

Dear Ms. Daigneault:

On behalf of Public Service Company of New Hampshire (PSNH), GZA GeoEnvironmental, Inc. (GZA) is pleased to submit the attached **Self-Monitoring Report** (SMR) for the period July 1, 2012 through July 31, 2012. This SMR is intended to satisfy Conditions 7 and 8 of the Interim Discharge Authorization (IDA) issued to PSNH by the Lowell Regional Wastewater Utility (LRWU), dated March 29, 2012. Wastewater flow was approximately 80,000 gallons for the monitoring period and was estimated based on the actual number of tanker trucks sent to LRWU from July 1, 2012 through July 31, 2012 and tanker capacity.

The attached **SMR Summary Sheet** summarizes the analytical results for all required parameters as outlined in Condition 8 of the IDA. The attached **Table 1** compares the results to the LRWU's Local Sewer Discharge Limits. The results indicate that pollutant concentrations were within the limits. The analysis of the softened Stream B samples collected (refer to the attached **Analytical Data Report** for Stream B) on July 12, 2012 and July 24, 2012 was performed in accordance with the United States Environmental Protection Agency (EPA) draft Standard Operating Procedure (SOP) for trace metals analysis of flue gas desulfurization (FGD) wastewater. The SOP is described below.

Also included with this monthly report is the **Analytical Data Reports** for the softened Stream A samples collected on July 19, 2012 and July 27, 2012. This waste stream was not transported to LRWU in the month of July 2012, but the analytical data reports are being provided as a courtesy.

ANALYTICAL DISCUSSION

FGD wastewater requires specialized analytical techniques to overcome matrix interferences for analysis of certain trace metals. To assist you in evaluating this issue further, we offer an excerpt below from the EPA web site and a link to their draft SOP for trace metals analysis of FGD wastewater that contains further guidance.

LABORATORY ANALYSIS OF FGD WASTEWATER

Wastewater from FGD systems can contain constituents known to cause matrix interferences. EPA has observed that, during inductively coupled plasma–mass spectrometry (ICP-MS) analysis of FGD wastewater, certain elements commonly present in the wastewater may cause polyatomic interferences that bias the detection and/or quantization of certain elements of interest. These potential interferences may become significant when measuring trace elements at concentrations in the low parts-per-billion range.

As part of a recent sampling effort for the steam electric power generating effluent guidelines rulemaking, EPA developed an SOP that was used in conjunction with EPA Method 200.8 to conduct ICP-MS analyses of FGD wastewater. The SOP describes critical technical and quality assurance procedures that were implemented to mitigate anticipated interferences and generate reliable data for FGD wastewater. EPA regulations at 40 CFR 136.6 already allow the analytical community flexibility to modify approved methods to lower the costs of measurements, overcome matrix interferences, or otherwise improve the analysis. The draft SOP developed for FGD wastewater takes a proactive approach toward looking for and taking steps to mitigate matrix interferences, including using specialized interference check solutions (i.e., a synthetic FGD wastewater matrix). EPA's draft SOP is being made available to laboratories contemplating ICP-MS analysis of FGD wastewater, either for adoption as currently written or to serve as a framework for developing their own laboratory-specific SOPs. For further information, see:

- Standard Operating Procedure: Inductively Coupled Plasma/Mass Spectrometry for Trace Element Analysis in Flue Gas Desulfurization Wastewaters (30 pp, 174K), *http://water.epa.gov/scitech/wastetech/guide/upload/steam_draft_sop.pdf*, EPA May 2011.

Considering that specialized analytical techniques are necessary to overcome matrix interference for certain analysis of trace metals in FGD wastewater, we recommend any analysis on FGD wastewater be conducted in accordance with the EPA draft SOP for trace metals analysis of FGD wastewater.

Should you have any questions concerning this report, please do not hesitate to contact me at (603) 232-8744.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Ronald A. Breton

Ronald A. Breton, P.E.
Senior Principal

RAB:rkl

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Attachments: Self-Monitoring Report
Analytical Data Reports

SELF-MONITORING REPORT

LOWELL REGIONAL WASTEWATER UTILITY
Industrial Sewer User Self-Monitoring Report Summary Sheet

Facility Information: Company Name Public Service of New Hampshire

Facility Address 97 River Road Bow, New Hampshire Permit No. NA (Interim Discharge Authorization)

Facility Contact Bradley Owens Telephone (603) 224-4081

----------***Use A Separate Summary Sheet For Each Monitoring Point*** ----------

Monitoring Report: Monitoring Point End of pretreatment process Submittal Date August 24, 2012

Reporting Period (circle applicable): Baseline Annually Semi-Annually Quarterly (Monthly) Re-Sample

Reporting Period Start Date July 1, 2012 Reporting Period End Date July 31, 2012

Sample Analysis: Certified Analytical Lab Eastern Analytical, Inc. (EAI)

Authorized Rep. Lorraine Olashaw Certification No. 1012

Analytical Sub-Contractor Frontier Global Sciences Certification No. E87575

Sample Collection: Sampler (Lab/Self/Other) Paul Pepler, GZA

Sample Type(s) (circle all that apply): (Grab) Time Composite Flow Composite

Grab Sampling: Sample Date 7/12/2012; 7/24/2012 Sample Time 12:45 pm; 3:15pm

pH (Standard Units) 7.85; 7.28 Instantaneous Flow Rate (GPM) N/A

Composite Sampling: Start Date/Time N/A Stop Date/Time N/A

No. Aliquots N/A Aliquot Volume N/A Sample Volume N/A

Flow Data: Sampling Interval Volume (Gal) N/A Daily Flow Rate (GPD) 8,889 (Average of discharge days)

Monitoring Period Industrial Wastewater Flow (Gal) Stream A: 0, Stream B: 0 Softened Stream B: 80,000 [ ] Meter [X] Estimate

Monitoring Period Start Date July 1, 2012 Monitoring Period End Date July 31, 2012

Refer to Self-Monitoring Report Instructions for details on completing this SMR Summary Sheet

LOWELL REGIONAL WASTEWATER UTILITY
Industrial Sewer User Self-Monitoring Report Summary Sheet

Submit All Chains of Custody and Laboratory Result Sheets With SMR Summary Sheet

Analytical Results:

Parameter	Analysis Date	Result (mg/L)	Parameter	Analysis Date	Result (mg/L)
BOD			Copper		
COD	7/17/2012	250	Cyanide (Total)	7/18/2012	<0.01
O & G 413.1 / 1664			Fluoride		
TSS			Lead	7/24/2012	0.00619
TOC *			Mercury	7/23/2012	0.000940
TTO ** 624 / 8260B – 625 / 8270			Molybdenum		
Aluminum			Nickel		
Antimony			Nitrogen (Kjeldahl)		
Arsenic	7/24/2012	0.0140	Phenols (Total)		
Barium			Selenium		
Beryllium			Silver	7/26/2012	<0.00200
Cadmium	7/26/2012	0.00332	Thallium		
Chromium (Hexavalent)			Zinc		
Chromium (Total)			Other: see Table 1		

BOD = Biochemical Oxygen Demand COD = Chemical Oxygen Demand O & G = Oil & Grease TSS = Total Suspended Solids TTO = Total Toxic Organics
***TOC** (Total Organic Carbon) = is the amount of carbon bound in an organic compound and is often used as a non-specific indicator of water quality. TOC measures both the total carbon present as well as the inorganic carbon (IC). Subtracting the inorganic carbon from the total carbon yields TOC.*
****TTO's** = Summation of all quantifiable values greater than 0.01 mg/L for toxic organics listed in 40 CFR 413.02(i). TTO's include PCB's (Poly-Chlorinated Biphenyls), VOC's (Volatile Organic Compounds), SVOC's (Semi-Volatile Organic Compounds). PCB's, VOC's and SVOC's shall be analyzed using EPA Methods 608, 624, and 625, respectively.*

Zero Discharge / Self-Monitoring (initial if applicable):

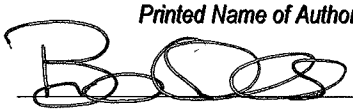
_____ No industrial wastewater from permitted processes has been discharged to sewer during the monitoring period

_____ No sampling has been conducted on permitted sewer discharges during the monitoring period

Certification Statement:

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Bradley Owens
Printed Name of Authorized Representative



Signature of Authorized Representative

Station Manager
Title

8/23/2012
Date

TABLE 1
SUMMARY OF SOFTENED STREAM B CONCENTRATIONS
COMPARED TO LOWELL SEWER DISCHARGE LIMITS
Public Service Company of New Hampshire
Merrimack Station
Bow, New Hampshire

PARAMETER	LOWELL SEWER DISCHARGE LIMITS (mg/L)	SOFTENED STREAM B RESULTS 7/12/2012 (mg/L)	SOFTENED STREAM B RESULTS 7/24/2012 (mg/L)
Alkalinity	-	No Data	8,600
Aluminum	24.69	No Data	<0.804
Antimony	-	No Data	0.00730
Arsenic	0.556	0.0140	No Data
Barium	-	No Data	1.910
Cadmium	0.056	0.00332	No Data
Calcium	-	767.000	22,400.000
Chloride	-	No Data	84,000
COD	-	250	No Data
Cyanide (T)	1.895	<0.01	No Data
Fluoride	-	No Data	<5
Iron	-	No Data	<2.010
Lead	0.857	0.00619	No Data
Magnesium	-	738.000	2,840.000
Manganese	-	No Data	0.803
Mercury	0.004	0.000940	No Data
Nitrate	-	No Data	910
Nitrate+Nitrite	-	No Data	921
pH	5.0-9.5	7.85	7.28
Silica	-	No Data	43
Silver	0.053	<0.00200	No Data
Sodium	-	33,000.000	34,200.000
Sulfate	-	No Data	1,600
TDS	-	No Data	160,000
TSS	-	No Data	14,000
Boron	-	No Data	3,040.000
Potassium	-	No Data	474.000
Bromide	-	No Data	1,400

ANALYTICAL DATA REPORTS

STREAM B

Eastern Analytical, Inc.

professional laboratory & drilling services

Paul Pepler
GZA GeoEnvironmental, Inc. (NH)
380 Harvey Road
Manchester , NH 03103

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 112196
Client Identification: PSNH-MK
Date Received: 07/13/2012

Dear Mr. Pepler :

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

Solid samples are reported on a dry weight basis, unless otherwise noted
< : "less than" followed by the reporting limit
> : "greater than" followed by the reporting limit
%R : % Recovery

Eastern Analytical Inc. maintains certification in the following states. Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw, Lab Director | 8.13.12 Date | 29 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **112196**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Temperature upon receipt (°C): 4.5 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
112196.01	Softened Stream B Wastewater	7/13/12	7/12/12	aqueous		Adheres to Sample Acceptance Policy
112196.02	Field Blank	7/13/12	7/12/12	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.
All results contained in this report relate only to the above listed samples.
References include:
1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater : Inorganics, 19th Edition, 1995; Microbiology, 20th Edition, 1998
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc. www.eailabs.com | 800.287.0525 | customerservice@eailabs.com

LABORATORY REPORT

EAI ID#: **112196**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Sample ID:	Softened Stream B Wastewater
Lab Sample ID:	112196.01
Matrix:	aqueous
Date Sampled:	7/12/12
Date Received:	7/13/12

			Analysis			
		Units	**Date**	**Time**	**Method**	**Analyst**
Cyanide Total	< 0.01	mg/L	7/18/12	10:00	4500CNE	KJR
COD	**250**	mg/L	7/17/12	12:00	H8000	SCW

QC REPORT

EAI ID#: **112196**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Cyanide Total	< 0.01	0.24 (95 %R)	NA	mg/L	7/18/12	85 - 115	20	4500CNE
COD	< 10	100 (101 %R)	98 (98 %R) (3 RPD)	mg/L	7/17/12	85 - 115	20	H8000

Parameter Name	MS/MSD Parent ID	MS/MSD Parent	Matrix Spike	MSD	Units	Date of Analysis	Limits	RPD	Method
Cyanide Total	112177.03	0.03	0.26 (92 %R)	0.26 (92 %R) (0 RPD)	mg/L	7/18/12	75-125	20	4500CNE
COD	112234.01	< 10	54 (124 %R)	57 (130 %R) (5 RPD)	mg/L	7/17/12	80-120	20	H8000

Samples were analyzed within holding times unless noted on the sample results page.
Instrumentation was calibrated in accordance with the method requirements.
The method blanks were free of contamination at the reporting limits.
The associated matrix spikes and/or Laboratory Control Samples met the above stated criteria.
Exceptions to the above statements are flagged or noted above or on the QC Narrative page.
*/! Flagged analyte recoveries deviated from the QA/QC limits.

FRONTIER
GLOBAL SCIENCES

11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

10 August 2012

Jeff Gagne
Eastern Analytical, Inc
25 Chenell Drive
Concord, NH 03301

RE: Merrimack Station 200.8

Enclosed are the analytical results for samples received by Frontier Global Sciences. All quality control measurements are within established control limits and there were no analytical difficulties encountered with the exception of those listed in the case narrative section of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Liz Siska

Liz Siska
Project Manager

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GLOBAL SCIENCES

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Bothell, WA 98011
Ph: 425-686-1996
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ANALYTICAL REPORT FOR SAMPLES

Laboratory: Frontier Global Sciences, Inc. **SDG:**

Client: Eastern Analytical, Inc **Project:** Merrimack Station 200.8

Sample ID	Lab ID	Matrix	Date Sampled	Date Received
SOFTENED STREAM B	1207218-01	Water	12-Jul-12 12:45	17-Jul-12 09:22
FIELD BLANK	1207218-02	Water	12-Jul-12 12:45	17-Jul-12 09:22

Frontier Global Sciences, Inc.

The results in this report only apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Liz Siska, Project Manager

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GLOBAL SCIENCES

11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

CASE NARRATIVE

SAMPLE RECEIPT
Samples were received at Frontier Global Sciences (FGS) on July 17th, 2012. The samples were received intact, on-ice with temperatures measured at 6.8 degrees Celsius.

SAMPLE PREPARATION AND ANALYSIS
Samples were prepared and analyzed for total metals in accordance with EPA Method 200.8 (modified).

Samples were prepared and analyzed for total mercury in accordance with EPA Method 1631E.

ANALYTICAL ISSUES
As an additional measure of the accuracy of the methods utilized for analysis and to check for matrix interference, matrix spikes (MS) and matrix spike duplicates (MSD) were digested and analyzed. All of the matrix spike recoveries were within the control limits with the exception of any QC flagged and described in the notes and definitions section of the following report.

A reasonable measure of the precision of the analytical methods utilized for analysis is the relative percent difference (RPD) between matrix spike and matrix spike duplicate recoveries and between laboratory control sample and laboratory control sample duplicate recoveries. All of the relative percent differences were within the control limits with the exception of any QC flagged and described in the notes and definitions section of the following report.

Frontier Global Sciences, Inc.

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Liz Siska, Project Manager

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CHAIN OF CUSTODY FORMS

FRONTIER GLOBAL SCIENCES

Chain of Custody Record & Laboratory Analysis Request: Air, Water, Sediments, Plant and Animal Tissue, Hydrocarbon & Other Samples

Page __ of __   1207218

11720 North Creek Parkway N
Bothell, WA 98011
Phone: 425-686-1996
Fax: 425-686-3096
info@FrontierGS.com
http://www.FrontierGS.com

Client: Eastern Analytical, Inc	Contact: Jeff Gagne
Address: 25 Chenell Drive, Concord NH [illegible]	Phone: [illegible] Fax:
	E-mail: [illegible] EAILABS.COM
Project Name: [illegible] Station	Contract/PO: 39143
Report To: SAME	Invoice To: SAME
Address: SAME	Address: SAME
Phone: [illegible] Fax:	Phone: SAME Fax:
E-mail: [illegible]@EAILABS.COM	E-mail: SAME

FGS PM: Liz Siska
Date:
TAT (business days): 20 (std) **15 10 5 4 3 2 24 hrs.** (For TAT < 10 days, contact PM. Surcharges apply for expedited TAT)
Saturday delivery? ☐ Y ☐ N (If yes, please contact PM)
EDD ☒ Y ☐ N
QA ☒ Standard ☐ High

No.	Engraved Bottle ID	Sample ID	# of Bottles	Matrix	Date & Time	Sampled By	Field Filtered (Y/N)	Field Preserved: HNO_3 HCl BrCl Other (%)	Analyses Requested: Total Metals	Mercury (1631)					
1		[illegible] Storm B	2	WW	7/6/12 1245				X	X					
2		Field Blank	1	WW	7/6/12 1245				X						
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

Comments:
Total Metals include
As, Cd, Pb, [illegible], Ca, Mg, Na
ICP/MS FGD WW
Low Level Mercury
1 Liter Container
w/o Field Blank

EAI # 112196
PO # 39143

For Laboratory Use Only		Matrix Codes	Relinquished By	Received By	Received By
COC Seal: None	Comments: 1Z [illegible]	FW: Fresh Water	[signature]	UPS	[signature]
Cooler Temp: 6.8°C	[illegible] 3951	WW: Waste Water	Name: Chris Johnson	Name:	Name: [illegible]
Carrier: UPS		SB: Sea and Brackish Water; SS: Soil and Sediment; TS: Plant and Animal Tissue; HC: Hydrocarbons; TR: Trap; OT: Other	Organization: EAI	Organization:	Organization: FGS
VTSR: [illegible]			Date & Time:	Date & Time: 7/6/12 1530	Date & Time: 7/17/12 0925
# of Coolers:			Tracking number:		

Sample Disposal:
☐ Return (shipping fees may apply)
☐ Standard Disposal – 30 Days after report
☐ Retain for ____ weeks after report (storage fees may apply)

By signing, you declare that you agree with FGS' terms and conditions, and that you authorize FGS to perform the specified analyses.

Customer Approval: ____________________ Date: ________

Frontier Global Sciences, Inc.

[signature]

Liz Siska, Project Manager

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11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

CHAIN OF CUSTODY FORMS

FGS Work Order: 1207218

Sample Receipt Checklist

Frontier Global Sciences

Client: Eastern Analytical Date & Time Received: 7/17/12 0925 Date Logged In: 7/17/12 1416 Date Labeled: 7/17/12

Project: ____ Received By: [illegible] Logged By: KST Labeled By: KST

# of Coolers Received: 1 Samples Arrived By: X Shipping Service ____ Courier ____ Hand ____ Other (Specify: ____)

Tracking/Airbill Number(s): UPS 1Z X46 599 13 9188 3951

Thermal Preservation: ____ None (Ambient) ____ Loose Ice X Gel/Blue Ice ____ Other (Specify: ____) Thermal Preservation Required: (Y) N

Cooler Information:	Y/N	Comments
The coolers do not appear to be tampered with:	Y	
Custody Seals are present and intact:	NA	[illegible]
Custody seals signed by:	NA	

Thermometer ID: 3150		CF: +0.3 °C	
Cooler 1: 4.6 °C	Cooler 4: °C	Cooler 7: °C	Cooler 10: °C
Cooler 2: °C	Cooler 5: °C	Cooler 8: °C	Cooler 11: °C
Cooler 3: °C	Cooler 6: °C	Cooler 9: °C	Cooler 12: °C

Chain of Custody:	Y/N	Comments
Sample ID/Description:	Y	
Date/Time of collection:	Y	
Sampled by:	N	
Preservation type:	NA	
Requested analyses:	Y	
Required signatures:	Y	
Internal COC required:	NA	

Sample Condition/Integrity:	Y/N	Comments
Sample containers intact:	Y	
Sample labels are present and legible:	Y	
Sample ID on container matches COC:	Y	
Correct sample containers used:	Y	
Samples received within holding times:	Y	
Sample volume sufficient for requested analyses:	Y	
Correct preservative used for requested analyses:	NA	
pH of preserved samples verified and recorded:	NA	unpreserved

Client Contacted: ____ Date/Time: ____ Method: ____

Anomalies/Non-conformances:

Discussion/Resolution:

FGS Sample Receipt Checklist Revision 2; 07/09/2012

Frontier Global Sciences, Inc.

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Liz Siska, Project Manager

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ANALYTICAL RESULTS

SOFTENED STREAM B

Matrix: Water **Laboratory ID:** 1207218-01

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
Arsenic	**14.0**	0.51	1.50	µg/L	10	F207209	2G25004	07/24/12	EPA 200.8	
Cadmium	**3.32**	0.415	2.00	µg/L	100	F207259	2G26007	07/26/12	EPA 200.8	
Calcium	**767000**	324	4000	µg/L	100	F207259	2G26007	07/26/12	EPA 200.8	
Lead	**6.19**	0.039	0.400	µg/L	10	F207209	2G25004	07/24/12	EPA 200.8	
Magnesium	**738000**	17.4	250	µg/L	100	F207259	2G26007	07/26/12	EPA 200.8	
Mercury	**940**	8.42	50.5	ng/L	100	F207212	2G23010	07/23/12	EPA 1631E	
Silver	ND	0.600	2.00	µg/L	100	F207259	2G26007	07/26/12	EPA 200.8	U
Sodium	**33000000**	5700	99100	µg/L	5000	F208033	2H09002	08/08/12	EPA 200.8	

Frontier Global Sciences, Inc.

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Liz Siska, Project Manager

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GLOBAL SCIENCES

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ANALYTICAL RESULTS

FIELD BLANK

Matrix: Water **Laboratory ID:** 1207218-02

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
Arsenic	ND	0.05	0.15	µg/L	1	F207209	2G25004	07/23/12	EPA 200.8	U
Cadmium	ND	0.004	0.020	µg/L	1	F207259	2G26007	07/26/12	EPA 200.8	U
Calcium	ND	3	40	µg/L	1	F207259	2G26007	07/26/12	EPA 200.8	U
Lead	ND	0.004	0.040	µg/L	1	F207209	2G25004	07/23/12	EPA 200.8	U
Magnesium	ND	0.2	2.5	µg/L	1	F207259	2G26007	07/26/12	EPA 200.8	U
Silver	ND	0.006	0.020	µg/L	1	F207259	2G26007	07/26/12	EPA 200.8	U
Sodium	ND	1	20	µg/L	1	F208033	2H09002	08/08/12	EPA 200.8	U

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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MATRIX DUPLICATES/TRIPLICATES

SOURCE: 1207278-03RE1

Batch: F207212 **Sequence:** 2G23010

Preparation: BrCl Oxidation **Lab Number:** F207212-DUP1

Analyte	Sample Concentration ng/L	Duplicate Concentration ng/L	MRL	% RPD	RPD Limit	Method	Notes
Mercury	245.1	238.7	50.5	2.63	24	EPA 1631E	

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Liz Siska, Project Manager

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11720 North Creek Parkway North, Suite 400
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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207218-01

Batch: F207209 **Sequence:** 2G25004

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207209-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Arsenic	14.01	15.150	28.03	92.6	70 - 130	EPA 200.8	
Lead	6.191	1.5150	7.631	95.1	70 - 130	EPA 200.8	

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Arsenic	15.150	28.88	98.2	3.00	70 - 130	20	EPA 200.8	
Lead	1.5150	7.433	82.0	2.64	70 - 130	20	EPA 200.8	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207218-01

Batch: F207209 **Sequence:** 2G25004

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207209-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Arsenic	14.01	202.00	209.6	96.8	70 - 130	EPA 200.8	AS
Lead	6.191	50.500	56.61	99.8	70 - 130	EPA 200.8	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Arsenic	202.00	210.1	97.1	0.240	70 - 130	20	EPA 200.8	AS
Lead	50.500	56.29	99.2	0.558	70 - 130	20	EPA 200.8	AS

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207278-03RE1

Batch: F207212 **Sequence:** 2G23010

Preparation: BrCl Oxidation **Lab Number:** F207212-MS/MSD1

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	245.1	510.00	695.5	88.3	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	510.00	721.5	93.4	3.67	71 - 125	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207256-04

Batch: F207212 **Sequence:** 2G23010

Preparation: BrCl Oxidation **Lab Number:** F207212-MS/MSD2

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	1.44	5.1000	6.52	99.5	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	5.1000	6.13	92.0	6.11	71 - 125	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207218-01RE1

Batch: F207259 **Sequence:** 2G26007

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207259-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Magnesium	738300	252.50	722500	-6260	70 - 130	EPA 200.8	QM-02
Calcium	766600	1515.0	755800	-709	70 - 130	EPA 200.8	QM-02
Silver	ND	1.5150	1.101	72.7	70 - 130	EPA 200.8	
Cadmium	3.321	0.80800	4.445	139	70 - 130	EPA 200.8	QM-02

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	252.50	741700	1350	2.62	70 - 130	20	EPA 200.8	QM-02
Calcium	1515.0	776800	673	2.73	70 - 130	20	EPA 200.8	QM-02
Silver	1.5150	1.190	78.5	7.76	70 - 130	20	EPA 200.8	
Cadmium	0.80800	3.612	36.0	20.7	70 - 130	20	EPA 200.8	QM-02, QR-08

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Ph: 425-686-1996
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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207218-01RE1

Batch: F207259 **Sequence:** 2G26007

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207259-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Magnesium	738300	202000	950100	105	70 - 130	EPA 200.8	AS
Calcium	766600	202000	991600	111	70 - 130	EPA 200.8	AS
Silver	ND	101.00	91.18	90.3	70 - 130	EPA 200.8	AS
Cadmium	3.321	202.00	195.5	95.1	70 - 130	EPA 200.8	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	202000	929400	94.6	2.20	70 - 130	20	EPA 200.8	AS
Calcium	202000	973000	102	1.90	70 - 130	20	EPA 200.8	AS
Silver	101.00	88.96	88.1	2.46	70 - 130	20	EPA 200.8	AS
Cadmium	202.00	190.7	92.8	2.46	70 - 130	20	EPA 200.8	AS

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Liz Siska

Liz Siska, Project Manager

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207218-01RE6

Batch: F208033 **Sequence:** 2H09002

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208033-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Sodium	32990000	505.00	33570000	115000	75 - 125	EPA 200.8	QM-02

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	505.00	33360000	73000	0.633	75 - 125	20	EPA 200.8	QM-02

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Liz Siska

Liz Siska, Project Manager

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207218-01RE6

Batch: F208033 **Sequence:** 2H09002

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208033-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Sodium	32990000	10010000	43480000	105	75 - 125	EPA 200.8	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	10010000	43820000	108	0.771	75 - 125	20	EPA 200.8	AS

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F207209 **Sequence:** 2G25004

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207209-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Arsenic	15.000	13.65	91.0	85 - 115	EPA 200.8	
Lead	1.5000	1.483	98.8	85 - 115	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Arsenic	15.000	13.12	87.4	4.01	85 - 115	20	EPA 200.8	
Lead	1.5000	1.422	94.8	4.20	85 - 115	20	EPA 200.8	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F207212
Sequence: 2G23010
Preparation: BrCl Oxidation
Lab Number: F207212-BS/BSD1
LCS Source: NIST 1641D

Analyte	Spike Added (ng/L)	LCS Concentration (ng/L)	LCS % Recovery	Recovery Limits	Method	Notes
Mercury	15.679	14.98	95.5	80 - 120	EPA 1631E	

Analyte	Spike Added (ng/L)	LCSD Concentration (ng/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	15.679	15.31	97.6	2.17	80 - 120	24	EPA 1631E	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F207259 **Sequence:** 2G26007

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207259-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Magnesium	250.00	243.3	97.3	85 - 115	EPA 200.8	
Calcium	1500.0	1407	93.8	85 - 115	EPA 200.8	
Silver	1.5000	1.495	99.7	85 - 115	EPA 200.8	
Cadmium	0.80000	0.797	99.6	85 - 113	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	250.00	239.2	95.7	1.73	85 - 115	20	EPA 200.8	
Calcium	1500.0	1392	92.8	1.10	85 - 115	20	EPA 200.8	
Silver	1.5000	1.532	102	2.46	85 - 115	20	EPA 200.8	
Cadmium	0.80000	0.755	94.4	5.38	85 - 113	20	EPA 200.8	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F208033 **Sequence:** 2H09002

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208033-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Sodium	500.00	471	94.3	80 - 120	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	500.00	473	94.6	0.308	80 - 120	20	EPA 200.8	

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Liz Siska

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PREPARATION BLANKS

Instrument: Hg2600-1 **Sequence:** 2G23010

Preparation: BrCl Oxidation

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F207212-BLK1	Mercury	0.06	0.50	ng/L	F207212	EPA 1631E	U
F207212-BLK2	Mercury	0.02	0.50	ng/L	F207212	EPA 1631E	U
F207212-BLK3	Mercury	-0.003	0.50	ng/L	F207212	EPA 1631E	U
F207212-BLK4	Mercury	0.02	0.50	ng/L	F207212	EPA 1631E	QB-04, U
F207212-BLK5	Mercury	0.28	0.52	ng/L	F207212	EPA 1631E	U, QB-06

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PREPARATION BLANKS

Instrument: ICPMS-6 **Sequence:** 2G25004

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F207209-BLK1	Arsenic	0.04	0.15	µg/L	F207209	EPA 200.8	U
F207209-BLK1	Lead	-0.0005	0.040	µg/L	F207209	EPA 200.8	U

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PREPARATION BLANKS

Instrument: ICPMS-6

Sequence: 2G26007

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F207259-BLK1	Magnesium	0.1	2.5	µg/L	F207259	EPA 200.8	U
F207259-BLK1	Calcium	1	40	µg/L	F207259	EPA 200.8	U
F207259-BLK1	Silver	-0.001	0.020	µg/L	F207259	EPA 200.8	U
F207259-BLK1	Cadmium	0.001	0.020	µg/L	F207259	EPA 200.8	U

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Fx: 425-686-3096

PREPARATION BLANKS

Instrument: ICPMS-6

Sequence: 2H09002

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F208033-BLK1	Sodium	4	20	µg/L	F208033	EPA 200.8	U

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Notes and Definitions

U	Analyte included in the analysis, but not detected
QR-08	The RPD value for the MS/MSD was outside of acceptance limits. Batch QC acceptable based on matrix duplicate and/or LCS/LCSD RPD values within control limits.
QM-02	The MS and/or MSD recoveries outside acceptance limits, due to spike concentration less than 1 times the sample concentration. The batch was accepted based on LCS and LCSD recoveries within control limits and, when analysis permits, acceptable AS/ASD.
QB-06	The blank was preserved to 5% BrCl rather than 1%. The control limit for blanks preserved to greater than 1% BrCl is the preservation percentage multiplied by the MRL.
QB-04	The blank was preserved to 2% BrCl rather than 1%. The control limit for blanks preserved to greater than 1% BrCl is the preservation percentage multiplied by the MRL.
AS	This MS and/or MSD is an analytical spike and/or an analytical spike duplicate.
DET	Analyte Detected
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
ND	Analyte Not Detected at or above the reporting limit
wet	Sample results reported on a wet weight basis
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
RSD	Relative Standard Deviation

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Liz Siska, Project Manager

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

112196

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

SAMPLE I.D. (Softened)	SAMPLING DATE/TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE/TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	VOC: 524.2 524.2 BTEX 524.2 MTBE ONLY	8260B 624 VTICS 1, 4 DIOXANE EDB DBCP	8021B BTEX HALOS	8015B GRO MEGRO MAVPH	SVOC: 8270D 625 SVTICS ABN A BN PAH	TPH8100 LI L2	8015B DRO MEDRO MAEPH	PEST 608 PCB 608 PEST 8081A PCB 8082	OIL & GREASE 1664 TPH 1664	TCLP: TCLP 1311 ABN METALS VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW)	TOTAL METALS (LIST BELOW)	INORGANICS: TS TSS TDS SPEC. CON.	BR CL F SO_4 NO_2 NO_3 NO_2NO_3	BOD CBOD T. ALK.	TKN NH_3 T. PHOS. O. PHOS.	pH T. RES. CHLORINE	PHENOLS TOC DOC	TOTAL CYANIDE TOTAL SULFIDE	REACTIVE CYANIDE REACTIVE SULFIDE FLASHPOINT IGNITABILITY	MICRO: TOTAL COLIFORM E. COLI FECAL COLIFORM	ENTEROCOCCI HETEROTROPHIC PLATE COUNT	OTHER	# OF CONTAINERS	NOTES MEOH VIAL #
STREAM B WASTEWATER	7/13/12 12:45p	WW	G												X							X	X						
FIELD BLANK	7/12/12 12:45 7/13/12														X														

MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER

PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

PROJECT MANAGER: Paul Pepler

COMPANY: GZA

ADDRESS: 380 Harvey Road

CITY: Manchester STATE: NH ZIP: 03103

PHONE: 603 232 8717 EXT.:

FAX:

E-MAIL: Paul.Pepler@gza.com

SITE NAME: PSNH - MK

PROJECT #:

STATE: (NH) MA ME VT OTHER:

REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:

QUOTE #: PO #:

DATE NEEDED: STANDARD TAT

QA/QC REPORTING LEVEL

A B C

OR

PRESUMPTIVE CERTAINTY

REPORTING OPTIONS

PRELIMS: (YES) OR NO

IF YES: FAX OR (PDF)

ELECTRONIC OPTIONS

NO FAX E-MAIL (PDF) EQUIS

TEMP. 4.5 °C

ICE? (YES) NO

Field pH: 7.85

SAMPLER(S)	DATE	TIME	
Paul Pepler	7/13	11:45	
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
	7/13	11:45	H Larson
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
7/13	12	1234	
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

METALS: 8 RCRA 13 PP FE, MN PB, CU

OTHER METALS:

DISSOLVED METALS FIELD FILTERED? YES NO

NOTES: (IE: SPECIAL DETECTION LIMITS, BILLING INFO, IF DIFFERENT)

Please send metals to Frontier.

As, Cd, Pb, Hg, Ag, Ca, Mg, Na / (Hg by cold vapor)

SITE HISTORY:

SUSPECTED CONTAMINATION:

FIELD READINGS:

eastern analytical, inc.
professional laboratory services
25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | FAX: 603.228.4591 | E-MAIL: CUSTOMERSERVICE@EAILABS.COM | WWW.EAILABS.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)

Eastern Analytical, Inc.

professional laboratory & drilling services

Paul Pepler
GZA GeoEnvironmental, Inc. (NH)
380 Harvey Road
Manchester , NH 03103

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 112537
Client Identification: PSNH-MK
Date Received: 7/25/2012

Dear Mr. Pepler :

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

Solid samples are reported on a dry weight basis, unless otherwise noted
< : "less than" followed by the reporting limit
> : "greater than" followed by the reporting limit
%R : % Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw, Lab Director | 8.16.12 Date | 28 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **112537**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Temperature upon receipt (°C): 5 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
112537.01	Softened Stream B WW	7/25/12	7/24/12	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.
All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater : Inorganics, 19th Edition, 1995; Microbiology, 20th Edition, 1998
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

EAI ID#: **112537**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Sample ID:	Softened Stream B WW
Lab Sample ID:	112537.01
Matrix:	aqueous
Date Sampled:	7/24/12
Date Received:	7/25/12

			Analysis			
		Units	Date	Time	Method	Analyst
Solids Suspended	**14000**	mg/L	7/26/12	8:00	2540D	JCC
Solids Dissolved	**160000**	mg/L	7/27/12	10:37	2540C	JCC
Fluoride	< 5	mg/L	8/01/12	17:27	300.0	KL
Bromide	**1400**	mg/L	7/31/12	12:35	300.0	KL
Sulfate	**1600**	mg/L	7/31/12	12:35	300.0	KL
Chloride	**84000**	mg/L	7/26/12	13:24	4500CIE	KD
Nitrite-N	**11**	mg/L	7/26/12	10:19	353.2	KD
Nitrate-N	**910**	mg/L	7/26/12	11:19	353.2	KD
Alkalinity Total (CaCO3)	**8600**	mg/L	7/31/12	10:00	2320B	SEL
Alk. Bicarb (as CaCO3)	**8600**	mg/L	7/31/12	10:00	2320B	SEL
Alk. Carbonate (as CaCO3)	< 1	mg/L	7/31/12	10:00	2320B	SEL

Fluoride: The reporting limit for Fluoride was raised due to the matrix.

QC REPORT

EAI ID#: **112537**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	94 (94 %R)	100 (100 %R) (6 RPD)	mg/L	7/26/12	90 - 110	20	2540D
Solids Dissolved	< 5	990 (99 %R)	NA	mg/L	7/27/12	85 - 115	20	2540C
Fluoride	< 0.1	2.1 (107 %R)	2.2 (108 %R) (1 RPD)	mg/L	7/31/12	90 - 110	20	300.0
Bromide	< 0.1	2.1 (107 %R)	2.2 (109 %R) (2 RPD)	mg/L	7/31/12	90 - 110	20	300.0
Sulfate	< 1	21 (103 %R)	21 (103 %R) (0 RPD)	mg/L	7/31/12	90 - 110	20	300.0
Chloride	< 1	25 (99 %R)	25 (101 %R) (2 RPD)	mg/L	7/26/12	90 - 110	20	4500CIE
Nitrite-N	< 0.5	5.3 (106 %R)	5.3 (106 %R) (0 RPD)	mg/L	7/26/12	90 - 110	20	353.2
Nitrate-N	< 0.5	4.9 (98 %R)	4.9 (97 %R) (1 RPD)	mg/L	7/26/12	90 - 110	20	353.2
Alkalinity Total (CaCO3)		NA	NA	mg/L	7/31/12		20	2320B
Alk. Bicarb (as CaCO3)		NA	NA	mg/L	7/31/12		20	2320B

Parameter Name	MS/MSD Parent ID	MS/MSD Parent	Matrix Spike	MSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended		NA	NA	NA	mg/L	7/26/12		20	2540D
Solids Dissolved		NA	NA	NA	mg/L	7/27/12		20	2540C
Fluoride	112599.05	0.9	3.0 (107 %R)	3.0 (106 %R) (1 RPD)	mg/L	7/31/12	85-120	20	300.0
Bromide	112537.01	1400	1800 (94 %R)	NA	mg/L	7/31/12	80-120	20	300.0
Sulfate	112537.01	1600	6000 (109 %R)	6000 (110 %R) (1 RPD)	mg/L	7/31/12	89-120	20	300.0
Chloride	112541.04	9	19 (101 %R)	19 (95 %R) (6 RPD)	mg/L	7/26/12	80-120	20	4500CIE
Nitrite-N		NA	NA	NA	mg/L	7/26/12		20	353.2
Nitrate-N	112541.04	< 0.5	9.4 (91 %R)	9.4 (91 %R) (0 RPD)	mg/L	7/26/12	80-120	20	353.2
Alkalinity Total (CaCO3)		NA	NA	NA	mg/L	7/31/12		20	2320B
Alk. Bicarb (as CaCO3)		NA	NA	NA	mg/L	7/31/12		20	2320B

Parameter Name	Duplicate Parent ID	Duplicate Parent	Duplicate	Units	Date of Analysis	RPD	Method
Solids Suspended	112551.02	70	70 (0 RPD)	mg/L	7/26/12	20	2540D
Solids Dissolved	112537.01	160000	160000 (1 RPD)	mg/L	7/27/12	20	2540C
Fluoride		NA	NA	mg/L	7/31/12	20	300.0
Bromide		NA	NA	mg/L	7/31/12	20	300.0
Sulfate		NA	NA	mg/L	7/31/12	20	300.0
Chloride		NA	NA	mg/L	7/26/12	20	4500CIE
Nitrite-N		NA	NA	mg/L	7/26/12	20	353.2
Nitrate-N		NA	NA	mg/L	7/26/12	20	353.2
Alkalinity Total (CaCO3)	112537.01	8600	7600 (12 RPD)	mg/L	7/31/12	20	2320B
Alk. Bicarb (as CaCO3)	112537.01	8600	7600 (12 RPD)	mg/L	7/31/12	20	2320B

Samples were analyzed within holding times unless noted on the sample results page.
Instrumentation was calibrated in accordance with the method requirements.
The method blanks were free of contamination at the reporting limits.
The associated matrix spikes and/or Laboratory Control Samples met the above stated criteria.
Exceptions to the above statements are flagged or noted above or on the QC Narrative page.
*/!Flagged analyte recoveries deviated from the QA/QC limits.

LABORATORY REPORT

EAI ID#: **112537**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Sample ID: Softened Stream B WW

Lab Sample ID: 112537.01

Matrix: aqueous

Date Sampled: 7/24/12

Date Received: 7/25/12

		Analytical Matrix	Units	Date of Analysis	Method	Analyst
Silica (calculated)	**43**	AqTot	mg/L	7/30/12	200.8	DS

Silica: Silicon (Si) was analyzed by Method 200.8 and converted to silica (SiO2) by calculation. All the silicon was assumed to be tied up as silica therefore the silicon concentration in mg/L was multiplied by 2.139 to convert to silica. Mg/L silicon * 2.139 = mg/L silica.

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15 August 2012

Jeff Gagne
Eastern Analytical, Inc
25 Chenell Drive
Concord, NH 03301

RE: Merrimack Station 200.8

Enclosed are the analytical results for samples received by Frontier Global Sciences. All quality control measurements are within established control limits and there were no analytical difficulties encountered with the exception of those listed in the case narrative section of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Liz Siska

Liz Siska
Project Manager

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ANALYTICAL REPORT FOR SAMPLES

Laboratory: Frontier Global Sciences, Inc. **SDG:**

Client: Eastern Analytical, Inc **Project:** Merrimack Station 200.8

Sample ID	Lab ID	Matrix	Date Sampled	Date Received
112537.01 Softened Stream B WW	1207401-01	Water	24-Jul-12 15:15	27-Jul-12 12:29

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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CASE NARRATIVE

SAMPLE RECEIPT
Samples were received at Frontier Global Sciences (FGS) on July 28th, 2012. The samples were received intact, on-ice with temperatures measured at 9.2 degrees Celsius. Ice packs had thawed upon arrival.

SAMPLE PREPARATION AND ANALYSIS
Samples were prepared and analyzed for total metals in accordance with EPA Method 200.8 (modified).

ANALYTICAL ISSUES
As an additional measure of the accuracy of the methods utilized for analysis and to check for matrix interference, matrix spikes (MS) and matrix spike duplicates (MSD) were digested and analyzed. All of the matrix spike recoveries were within the control limits with the exception of any QC flagged and described in the notes and definitions section of the following report.

A reasonable measure of the precision of the analytical methods utilized for analysis is the relative percent difference (RPD) between matrix spike and matrix spike duplicate recoveries and between laboratory control sample and laboratory control sample duplicate recoveries. All of the relative percent differences were within the control limits with the exception of any QC flagged and described in the notes and definitions section of the following report.

Frontier Global Sciences, Inc.

Liz Siska, Project Manager

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CHAIN OF CUSTODY FORMS

(5)

FGS Work Order: 1207401

Sample Receipt Checklist

Frontier Global Sciences

Client: Eastern Analytical Date & Time Received: 7/28/12 1430 Date Logged In: 7/28/12 Date Labeled: 7/28/12

Project: _____ Received By: CD Logged By: AMB Labeled By: AMB

# of Coolers Received: 1 Samples Arrived By: X Shipping Service ____ Courier ____ Hand ____ Other (Specify: _____)

Tracking/Airbill Number(s): UPS 1Z X46 599 13 9705 773

Thermal Preservation: ____None (Ambient) ____Loose Ice ____Gel/Blue Ice X Other (Specify: _____) Thermal Preservation Required: Y / N

Cooler Information:	Y/N	Comments
The coolers do not appear to be tampered with:	Y	
Custody Seals are present and intact:	N	None used
Custody seals signed by:	N/A	

Thermometer ID: 3.5C			CF: +0.3°C	
Cooler 1: 10 °C	Cooler 4: °C	Cooler 7: °C	Cooler 10: °C	
Cooler 2: °C	Cooler 5: °C	Cooler 8: °C	Cooler 11: °C	
Cooler 3: °C	Cooler 6: °C	Cooler 9: °C	Cooler 12: °C	

Chain of Custody:	Y/N	Comments
Sample ID/Description:	Y	
Date/Time of collection:	Y	
Sampled by:	N	
Preservation type:	N/A	
Requested analyses:	Y	
Required signatures:	Y	
Internal COC required:	N	

Sample Condition/Integrity:	Y/N	Comments
Sample containers intact:	Y	
Sample labels are present and legible:	Y	
Sample ID on container matches COC:	Y	
Correct sample containers used:	Y	
Samples received within holding times:	Y	
Sample volume sufficient for requested analyses:	Y	
Correct preservative used for requested analyses:	N/A	
pH of preserved samples verified and recorded:	N/A	

Client Contacted: _____ Date/Time: _____ Method: _____

Anomalies/Non-conformances:

Temperature taken delayed by ice packs were completely thawed + liquid present. Samples received at 11:50 but cooler not opened until 14:30. AMB 7/28/12

Discussion/Resolution:

FGS Sample Receipt Checklist Revision 2; 07/09/2012

Frontier Global Sciences, Inc.

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Liz Siska, Project Manager

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CHAIN OF CUSTODY FORMS

1207401

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Chain of Custody Record & Laboratory Analysis Request:
Air, Water, Sediments, Plant and Animal Tissue,
Hydrocarbon & Other Samples

Page __ of __ 1207401

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Phone: 425-686-1996
Fax: 425-686-3096
info@FrontierGS.com
http://www.FrontierGS.com

Client: Eastern Analytical Inc	Contact: Jeff Gagne
Address: 25 Chenell Drive Concord NH 03301	Phone: 603-228-0525
	E-mail: JeffG@eailabs.com
Project Name	Contract/PO: 39192
Report To: Same	Invoice To:
Address: Same	Address:
Phone: 603-228-0525 Fax:	Phone: Fax:
E-mail: CustomerService@eailabs.com	E-mail:

FGS PM: Liz Siska
Date:
TAT (business days): 20 (std) 15 10 5 4 3 2 24 hrs. (For TAT < 10 days, contact PM. Surcharges apply for expedited TAT)
Saturday delivery? ☐ Y ☐ N (If yes, please contact PM)
EDD ☐ Y ☐ N
QA ☐ Standard ☐ High

No.	Engraved Bottle ID	Sample ID	# of Bottles	Matrix	Date & Time	Sampled By	Field Filtered (Y/N)	Field Preserved: HNO3 HCl BrCl Other (%)	Analyses Requested: Coolest/200.8 mod	N collision Cell					Comments
1	112557.01	Softened Stream B WQ	1		7/24/12 15:15				X						metals: Na, Mg, Ca, K, B, Al, Mn, Ba, Sb, Fe
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

For Laboratory Use Only
COC Seal: None
Cooler Temp: 9.2°C
Carrier: UPS
VTSR: 1152
Comments: 12 X46 599 13 97-5 7123 TIO 3150
# of Coolers:

Matrix Codes:
FW: Fresh Water
WW: Waste Water
SB: Sea and Brackish Water
SS: Soil and Sediment
TS: Plant and Animal Tissue
HC: Hydrocarbons
TR: Trap
OT: Other

Relinquished By:	Received By:	Received By:
N. Zink-Mallows	UPS	[signature]
Name: N. Zink-Mallows	Name:	Name: Geo Dooley
Organization:	Organization:	Organization: FGS
Date & Time:	Date & Time:	Date & Time: 7/27/12 1930

Tracking number:

Sample Disposal:
☐ Return (shipping fees may apply)
☐ Standard Disposal – 30 Days after report
☐ Retain for ____ weeks after report (storage fees may apply)

By signing, you declare that you agree with FGS' terms and conditions, and that you authorize FGS to perform the specified analyses.

Customer Approval: N. Zink-Mallows Date: 7/26/12

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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ANALYTICAL RESULTS

112537.01 Softened Stream B WW

Matrix: Water **Laboratory ID:** 1207401-01

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
Aluminum	ND	40.2	804	µg/L	200	F208014	2H05006	08/03/12	EPA 200.8	U
Antimony	**7.30**	0.623	2.01	µg/L	100	F208071	2H10005	08/09/12	EPA 200.8	
Barium	**1910**	3.48	40.2	µg/L	200	F208014	2H05006	08/03/12	EPA 200.8	
Boron	**3040000**	3610	30100	µg/L	10000	F208150	2H14010	08/14/12	EPA 200.8	
Calcium	**22400000**	13500	201000	µg/L	5000	F208014	2H05006	08/03/12	EPA 200.8	
Iron	ND	123	2010	µg/L	200	F208014	2H05006	08/03/12	EPA 200.8	U
Magnesium	**2840000**	2960	20100	µg/L	10000	F208124	2H13011	08/13/12	EPA 200.8	
Manganese	**803**	2.53	40.2	µg/L	200	F208014	2H05006	08/03/12	EPA 200.8	
Potassium	**474000**	820	8040	µg/L	200	F208014	2H05006	08/03/12	EPA 200.8	
Sodium	**34200000**	5010	100000	µg/L	5000	F208014	2H05006	08/03/12	EPA 200.8	

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Liz Siska, Project Manager

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02

Batch: F208014 **Sequence:** 2H05006

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208014-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Sodium	1687	505.00	2221	106	70 - 130	EPA 200.8	
Aluminum	28.3	151.50	200.1	113	70 - 130	EPA 200.8	
Potassium	400	303.00	730	109	70 - 130	EPA 200.8	
Calcium	3021	1515.0	4521	99.0	70 - 130	EPA 200.8	
Manganese	11.19	6.0600	17.26	100	70 - 130	EPA 200.8	
Iron	125	505.00	598	93.7	70 - 130	EPA 200.8	
Barium	3.55	10.100	13.68	100	70 - 130	EPA 200.8	

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	505.00	2227	107	0.241	70 - 130	20	EPA 200.8	
Aluminum	151.50	189.3	106	5.56	70 - 130	20	EPA 200.8	
Potassium	303.00	719	105	1.52	70 - 130	20	EPA 200.8	
Calcium	1515.0	4525	99.3	0.0821	70 - 130	20	EPA 200.8	
Manganese	6.0600	17.34	101	0.436	70 - 130	20	EPA 200.8	
Iron	505.00	595	93.2	0.394	70 - 130	20	EPA 200.8	
Barium	10.100	13.37	97.2	2.27	70 - 130	20	EPA 200.8	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02

Batch: F208014 **Sequence:** 2H05006

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208014-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Sodium	1687	20200	22380	102	70 - 130	EPA 200.8	AS
Aluminum	28.3	2020.0	2107	103	70 - 130	EPA 200.8	AS
Potassium	400	20200	21600	105	70 - 130	EPA 200.8	AS
Calcium	3021	20200	24250	105	70 - 130	EPA 200.8	AS
Manganese	11.19	202.00	217.4	102	70 - 130	EPA 200.8	AS
Iron	125	1010.0	1133	99.8	70 - 130	EPA 200.8	AS
Barium	3.55	404.00	408.6	100	70 - 130	EPA 200.8	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	20200	22750	104	1.63	70 - 130	20	EPA 200.8	AS
Aluminum	2020.0	2089	102	0.856	70 - 130	20	EPA 200.8	AS
Potassium	20200	21470	104	0.583	70 - 130	20	EPA 200.8	AS
Calcium	20200	23980	104	1.13	70 - 130	20	EPA 200.8	AS
Manganese	202.00	215.5	101	0.841	70 - 130	20	EPA 200.8	AS
Iron	1010.0	1124	98.9	0.841	70 - 130	20	EPA 200.8	AS
Barium	404.00	412.0	101	0.825	70 - 130	20	EPA 200.8	AS

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02RE1

Batch: F208071 **Sequence:** 2H10005

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208071-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Antimony	0.110	0.80800	0.872	94.3	70 - 130	EPA 200.8	

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Antimony	0.80800	0.931	102	6.55	70 - 130	20	EPA 200.8	

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02RE1

Batch: F208071 **Sequence:** 2H10005

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208071-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Antimony	0.110	10.100	6.944	67.7	70 - 130	EPA 200.8	QM-13, AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Antimony	10.100	7.346	71.6	5.62	70 - 130	20	EPA 200.8	AS

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02RE2

Batch: F208124 **Sequence:** 2H13011

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208124-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Magnesium	785.0	252.50	1045	103	70 - 130	EPA 200.8	

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	252.50	1063	110	1.71	70 - 130	20	EPA 200.8	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02RE2

Batch: F208124 **Sequence:** 2H13011

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208124-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Magnesium	785.0	20200	22190	106	70 - 130	EPA 200.8	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	20200	22260	106	0.339	70 - 130	20	EPA 200.8	AS

Frontier Global Sciences, Inc.

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Liz Siska, Project Manager

FRONTIER GLOBAL SCIENCES

11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02RE3

Batch: F208150 **Sequence:** 2H14010

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208150-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Boron	17.3	75.750	92.1	98.7	70 - 130	EPA 200.8	

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Boron	75.750	82.9	86.6	10.5	70 - 130	20	EPA 200.8	

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Liz Siska, Project Manager

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Bothell, WA 98011
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Fx: 425-686-3096

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02RE3

Batch: F208150 **Sequence:** 2H14010

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208150-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Boron	17.3	816.00	835.2	100	70 - 130	EPA 200.8	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Boron	816.00	888.0	107	6.12	70 - 130	20	EPA 200.8	AS

Frontier Global Sciences, Inc.

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Liz Siska, Project Manager

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GLOBAL SCIENCES

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Fx: 425-686-3096

LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F208014 **Sequence:** 2H05006

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208014-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Sodium	500.00	448	89.6	85 - 115	EPA 200.8	
Aluminum	150.00	140.9	93.9	85 - 115	EPA 200.8	
Potassium	300.00	290	96.5	85 - 115	EPA 200.8	
Calcium	1500.0	1513	101	85 - 115	EPA 200.8	
Manganese	6.0000	5.91	98.5	85 - 115	EPA 200.8	
Iron	500.00	470	93.9	85 - 115	EPA 200.8	
Barium	10.000	10.24	102	85 - 115	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	500.00	447	89.4	0.269	85 - 115	20	EPA 200.8	
Aluminum	150.00	136.3	90.9	3.30	85 - 115	20	EPA 200.8	
Potassium	300.00	285	94.9	1.68	85 - 115	20	EPA 200.8	
Calcium	1500.0	1520	101	0.457	85 - 115	20	EPA 200.8	
Manganese	6.0000	5.91	98.4	0.0950	85 - 115	20	EPA 200.8	
Iron	500.00	472	94.3	0.417	85 - 115	20	EPA 200.8	
Barium	10.000	10.15	101	0.884	85 - 115	20	EPA 200.8	

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Liz Siska, Project Manager

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Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F208071 **Sequence:** 2H10005

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208071-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Antimony	0.80000	0.769	96.2	85 - 115	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Antimony	0.80000	0.776	97.0	0.832	85 - 115	20	EPA 200.8	

Frontier Global Sciences, Inc.

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Liz Siska, Project Manager

FRONTIER GLOBAL SCIENCES

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Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F208124 **Sequence:** 2H13011

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208124-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Magnesium	250.00	252.9	101	85 - 115	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	250.00	250.8	100	0.796	85 - 115	20	EPA 200.8	

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F208150 **Sequence:** 2H14010

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208150-BS/BSD1

LCS Source: LCS

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Boron	75.000	70.4	93.8	85 - 115	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Boron	75.000	70.0	93.4	0.530	85 - 115	20	EPA 200.8	

Frontier Global Sciences, Inc.

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Liz Siska

Liz Siska, Project Manager

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GLOBAL SCIENCES

11720 North Creek Parkway North, Suite 400
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Ph: 425-686-1996
Fx: 425-686-3096

PREPARATION BLANKS

Instrument: ICPMS-6

Sequence: 2H05006

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F208014-BLK1	Sodium	0.6	20	µg/L	F208014	EPA 200.8	U
F208014-BLK1	Aluminum	1.2	4.0	µg/L	F208014	EPA 200.8	U
F208014-BLK1	Potassium	-3	40	µg/L	F208014	EPA 200.8	U
F208014-BLK1	Calcium	0.5	40	µg/L	F208014	EPA 200.8	U
F208014-BLK1	Manganese	0.001	0.20	µg/L	F208014	EPA 200.8	U
F208014-BLK1	Iron	0.05	10	µg/L	F208014	EPA 200.8	U
F208014-BLK1	Barium	0.02	0.20	µg/L	F208014	EPA 200.8	U

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Liz Siska, Project Manager

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Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

PREPARATION BLANKS

Instrument: ICPMS-6 **Sequence:** 2H10005

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F208071-BLK1	Antimony	0.0007	0.020	µg/L	F208071	EPA 200.8	U

Frontier Global Sciences, Inc.

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Liz Siska, Project Manager

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PREPARATION BLANKS

Instrument: ICPMS-6

Sequence: 2H13011

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F208124-BLK1	Magnesium	0.6	2.0	µg/L	F208124	EPA 200.8	U

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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PREPARATION BLANKS

Instrument: ICPMS-6

Sequence: 2H14010

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F208150-BLK1	Boron	-0.04	3.0	µg/L	F208150	EPA 200.8	U

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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Notes and Definitions

U	Analyte included in the analysis, but not detected
QM-13	The analytical spike recovery was outside control limits for the AS and/or ASD. The batch was accepted based on MS/MSD and LCS/LCSD recoveries within control limits.
AS	This MS and/or MSD is an analytical spike and/or an analytical spike duplicate.
DET	Analyte Detected
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
ND	Analyte Not Detected at or above the reporting limit
wet	Sample results reported on a wet weight basis
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
RSD	Relative Standard Deviation

Frontier Global Sciences, Inc.

Liz Siska, Project Manager

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Chain-of-Custody Record

112537

28

Bold Fields Required. Please Circle Requested Analysis.

Sample I.D.	Sampling Date/Time *If Composite, Indicate Both Start & Finish Date/Time	Matrix (see below)	Grab/*Composite	VOC: 524.2 / 524.2 BTEX / 524.2 MTBE only	VOC: 8260B / 624 / VTICs / 1,4 Dioxane / EDB / DBCP	VOC: 8021B / BTEX / HALOS	VOC: 8015B GRO / MEGRO / MAVPH	SVOC: 8270D / 625 / SVTICs / ABN / A / BN / PAH	SVOC: TPH8100 / L1 / L2	SVOC: 8015B DRO / MEDRO / MAEPH	SVOC: PEST 608 / PCB 608 / PEST 8081A / PCB 8082	SVOC: Oil & Grease 1664 / TPH 1664	TCLP: TCLP 1311 / ABN / Metals / VOC / Pest / Herb	Metals: Dissolved Metals (list below)	Metals: Total Metals (list below)	Inorganics: TS / (TSS) / (TDS) / Spec. Con.	Inorganics: (Br / Cl / F / SO_4) / (NO_2 / NO_3) / NO_3NO_2	Inorganics: BOD / CBOD / (T. Alk.)	Inorganics: TKN / NH_3 / T. Phos. / O. Phos.	Inorganics: pH / T. Res. Chlorine / N(T)	Inorganics: COD / Phenols / TOC / DOC	Inorganics: Total Cyanide / Total Sulfide	Inorganics: Reactive Cyanide / Reactive Sulfide / Flashpoint / Ignitability	Micro: Total Coliform / E. Coli / Fecal Coliform	Micro: Enterococci / Heterotrophic Plate Count	Other	Other	Other	# of Containers	Notes MeOH Vial #
Softened Stream B WW	07/24/2012: 15:15	WW	G												X	X	X	X											3	

Matrix: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste water

Preservative: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

Project Manager: Paul Pepler

Company: GZA GeoEnvironmental, Inc.

Address: 380 Harvey Road

City: Manchester State: NH Zip: 03103

Phone: 603-232-8717 Ext.:

Fax:

E-Mail: paul.pepler@gza.com

Site Name: PSNH- MK

Project #:

State: (NH) MA ME VT Other:

Regulatory Program: NPDES: RGP POTW Stormwater or GWP, Oil Fund, Brownfield or Other:

Quote #: PO #:

Date Needed: Standard TAT

Temp. 5 °C

Ice? (Yes) No

QA/QC Reporting Level

A B C

or

Presumptive Certainty

Reporting Options

Prelims: (Yes) or No

If Yes: Fax or PDF

Electronic Options

No Fax E-Mail (PDF) Equis

Sampler(s): Paul Pepler, GZA

Relinquished By:	Date:	Time:	Received By:
[signature]	7/25/12	1:52 pm	[signature]
[signature]	7/25/12	1431	[signature]

Metals: 8 RCRA 13 PP Fe, Mn Pb, Cu

Other Metals:

Dissolved Metals Field Filtered? Yes No

Notes: (ie: Special Detection Limits, Billing Info, If Different)

FIELD pH: 7.28

Please include: CO3, HCO3, silica, sodium, magnesium, calcium, potassium, B, Al, Mn, Ba, Sb, and Fe

PLEASE SEND METALS TO FRONTIER FOR ANALYSIS BY 200.8MOD, ICPMS W/ collision cell

Site History:

Suspected Contamination:

Field Readings:

(White: Original Green: Project Manager)

ANALYTICAL DATA REPORTS

STREAM A

Eastern Analytical, Inc.

professional laboratory & drilling services

Paul Pepler
GZA GeoEnvironmental, Inc. (NH)
380 Harvey Road
Manchester , NH 03103

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	112435
Client Identification:	PSNH-MK
Date Received:	7/20/2012

Dear Mr. Pepler :

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

Solid samples are reported on a dry weight basis, unless otherwise noted
< : "less than" followed by the reporting limit
> : "greater than" followed by the reporting limit
%R : % Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw, Lab Director

8/8/12
Date

32
# of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **112435**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Temperature upon receipt (°C): 6 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
112435.01	A Stream Softened	7/20/12	7/19/12	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater : Inorganics, 19th Edition, 1995; Microbiology, 20th Edition, 1998

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

EAI ID#: **112435**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Sample ID: A Stream Softened

Lab Sample ID:	112435.01
Matrix:	aqueous
Date Sampled:	7/19/12
Date Received:	7/20/12

			Analysis			
		Units	**Date**	**Time**	**Method**	**Analyst**
Solids Suspended	< 5	mg/L	7/23/12	10:40	2540D	JCC
Solids Dissolved	**22000**	mg/L	7/23/12	10:40	2540C	JCC
BOD	< 6	mg/L	7/20/12	18:01	5210B	SKC

QC REPORT

EAI ID#: **112435**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	100 (103 %R)	98 (98 %R) (5 RPD)	mg/L	7/23/12	90 - 110	20	2540D
Solids Dissolved	< 5	990 (99 %R)		mg/L	7/23/12	85 - 115		2540C
BOD	< 6	370 (92 %R)	380 (94 %R) (2 RPD)	mg/L	7/20/12	84 - 115	20	5210B

Samples were analyzed within holding times unless noted on the sample results page.
Instrumentation was calibrated in accordance with the method requirements.
The method blanks were free of contamination at the reporting limits.
The associated matrix spikes and/or Laboratory Control Samples met the above stated criteria.
Exceptions to the above statements are flagged or noted above or on the QC Narrative page.
*/! Flagged analyte recoveries deviated from the QA/QC limits.

FRONTIER
GLOBAL SCIENCES

11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

07 August 2012

Jeff Gagne
Eastern Analytical, Inc
25 Chenell Drive
Concord, NH 03301

RE: Merrimack Station 200.8

Enclosed are the analytical results for samples received by Frontier Global Sciences. All quality control measurements are within established control limits and there were no analytical difficulties encountered with the exception of those listed in the case narrative section of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Liz Siska

Liz Siska
Project Manager

FRONTIER
GLOBAL SCIENCES

11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

ANALYTICAL REPORT FOR SAMPLES

Laboratory: Frontier Global Sciences, Inc.
SDG:
Client: Eastern Analytical, Inc
Project: Merrimack Station 200.8

Sample ID	Lab ID	Matrix	Date Sampled	Date Received
112435.01 A Stream Softened	1207333-01	Water	19-Jul-12 00:00	24-Jul-12 09:20

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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CASE NARRATIVE

SAMPLE RECEIPT
Samples were received at Frontier Global Sciences (FGS) on July 24th, 2012. The samples were received intact, on-ice with temperatures measured at 0.3 degrees Celsius.

SAMPLE PREPARATION AND ANALYSIS
Samples were prepared and analyzed for total metals in accordance with EPA Method 200.8 (modified).

Samples were prepared and analyzed for total mercury in accordance with EPA Method 1631E.

ANALYTICAL ISSUES
As an additional measure of the accuracy of the methods utilized for analysis and to check for matrix interference, matrix spikes (MS) and matrix spike duplicates (MSD) were digested and analyzed. All of the matrix spike recoveries were within the control limits with the exception of any QC flagged and described in the notes and definitions section of the following report.

A reasonable measure of the precision of the analytical methods utilized for analysis is the relative percent difference (RPD) between matrix spike and matrix spike duplicate recoveries and between laboratory control sample and laboratory control sample duplicate recoveries. All of the relative percent differences were within the control limits with the exception of any QC flagged and described in the notes and definitions section of the following report.

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

FRONTIER GLOBAL SCIENCES

CHAIN OF CUSTODY FORMS

FRONTIER GLOBAL SCIENCES

Chain of Custody Record & Laboratory Analysis Request:
Air, Water, Sediments, Plant and Animal Tissue,
Hydrocarbon & Other Samples

Page __ of __

1207333

11720 North Creek Parkway N
Bothell, WA 98011
Phone: 425-686-1996
Fax: 425-686-3096
info@FrontierGS.com
http://www.FrontierGS.com

Client: Eastern Analytical, Inc	Contact: Jeff Gagne	Analyses Requested	FGS PM: Liz Siska
Address: 25 Chenell Drive Concord NH 03301	Phone: 603-228-0525 Fax:		Date:
	E-mail: Jeff G@eailabs.com		TAT (business days): 20 (std) 15 10 5 4 3 2 24 hrs. (For TAT < 10 days, contact PM. Surcharges apply for expedited TAT)
Project Name	Contract/PO:		
Report To: Same	Invoice To: Same		
Address: Same	Address: Same		Saturday delivery? ☐ Y ☐ N (If yes, please contact PM)
Phone: 603-228-0525 Fax:	Phone: Fax:		EDD ☒ Y ☐ N
E-mail: CustomerService@eailabs.com	E-mail:		QA ☒ Standard ☐ High

No.	Engraved Bottle ID	Sample ID	# of Bottles	Matrix	Date & Time	Sampled By	Field Filtered (Y/N)	Field Preserved: HNO_3 HCl BrCl Other (%)							Comments
1	112435.01	A Stream Softened	1	WW	7/19/12 19:30	KK									usual metals
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

For Laboratory Use Only		Matrix Codes:	Relinquished By:	Received By:	Received By:
COC Seal: None	Comments: 1Z X46 599 13 9988 4683	FW: Fresh Water; WW: Waste Water; SB: Sea and Brackish Water; SS: Soil and Sediment; TS: Plant and Animal Tissue; HC: Hydrocarbons; TR: Trap; OT: Other	K. Zink-Mailloux	UPS	[signature]
Cooler Temp: 0.3 C			Name: K. Zink-Mailloux	Name:	Name: [illegible]
Carrier: UPS			Organization:	Organization:	Organization: FGS
VTSR: 0930	TID 315		Date & Time:	Date & Time:	Date & Time: 7/24/12 [illegible]
# of Coolers:			Tracking number:		

Sample Disposal:
☐ Return (shipping fees may apply)
☐ Standard Disposal – 30 Days after report
☐ Retain for ____ weeks after report (storage fees may apply)

By signing, you declare that you agree with FGS' terms and conditions, and that you authorize FGS to perform the specified analyses.

Customer Approval: ______________________ Date: ________

Frontier Global Sciences, Inc.

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Liz Siska

Liz Siska, Project Manager

FRONTIER GLOBAL SCIENCES

11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

CHAIN OF CUSTODY FORMS

FGS Work Order: 1207333 **Sample Receipt Checklist** Frontier Global Sciences

Client: Eastern Analytical Date & Time Received: 7/24/12 1015 Date Logged In: 7/24/12 Date Labeled: 7/24/12

Project: _____ Received By: Cara Dailey Logged By: Cara Dailey Labeled By: Cara Dailey

# of Coolers Received: 1 Samples Arrived By: X Shipping Service ____ Courier ____ Hand ____ Other (Specify: _____)

Tracking/Airbill Number(s): 185 12 XH6 599 13 9988 4682

Thermal Preservation: ____None (Ambient) ____Loose Ice ____Gel/Blue Ice ____Other (Specify: _____) Thermal Preservation Required: (Y) / N

Cooler Information:	Y/N	Comments
The coolers do not appear to be tampered with:	Y	
Custody Seals are present and intact:	N	Were Used
Custody seals signed by:	N/A	

Thermometer ID: 515C			CF: +0.3°C	
Cooler 1: 3.3°C	Cooler 4: °C	Cooler 7: °C	Cooler 10: °C	
Cooler 2: °C	Cooler 5: °C	Cooler 8: °C	Cooler 11: °C	
Cooler 3: °C	Cooler 6: °C	Cooler 9: °C	Cooler 12: °C	

Chain of Custody:	Y/N	Comments
Sample ID/Description:	Y	
Date/Time of collection:	Y	
Sampled by:	Y	
Preservation type:	N/A	
Requested analyses:	N	Provided via DW via email
Required signatures:	Y	
Internal COC required:	N	

Sample Condition/Integrity:	Y/N	Comments
Sample containers intact:	Y	
Sample labels are present and legible:	Y	
Sample ID on container matches COC:	Y	
Correct sample containers used:	Y	*
Samples received within holding times:	Y	
Sample volume sufficient for requested analyses:	Y	
Correct preservative used for requested analyses:	N/A	
pH of preserved samples verified and recorded	N/A	

Client Contacted: _____ Date/Time: _____ Method: _____

Anomalies/Non-conformances (attach additional pages if needed):

* Split will need to be taken for THg testing

Discussion/Resolution:

FGS Sample Receipt Checklist Revision 2; 07/09/2012

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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ANALYTICAL RESULTS

112435.01 A Stream Softened

Matrix: Water **Laboratory ID:** 1207333-01

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
Arsenic	ND	2.55	7.50	µg/L	50	F207286	2G29003	07/28/12	EPA 200.8 Mod	U
Cadmium	ND	0.042	0.200	µg/L	10	F207286	2G29003	07/29/12	EPA 200.8 Mod	U
Calcium	**1320000**	16200	200000	µg/L	5000	F207286	2G29003	07/28/12	EPA 200.8 Mod	
Chromium	ND	0.45	5.00	µg/L	50	F207298	2G31007	07/30/12	EPA 200.8 Mod	R-05, U
Copper	ND	0.50	5.00	µg/L	50	F207286	2G29003	07/28/12	EPA 200.8 Mod	U
Lead	ND	0.039	0.400	µg/L	10	F207286	2G29003	07/29/12	EPA 200.8 Mod	U
Magnesium	**30200**	8.7	125	µg/L	50	F207286	2G29003	07/28/12	EPA 200.8 Mod	
Mercury	**44.3**	0.84	5.05	ng/L	10	F208015	2H02011	08/02/12	EPA 1631E	FB-1631
Molybdenum	**25.9**	0.60	6.00	µg/L	50	F207311	2H05004	08/05/12	EPA 200.8 Mod	
Nickel	**84.4**	0.40	5.00	µg/L	50	F207286	2G29003	07/28/12	EPA 200.8 Mod	
Selenium	**44.6**	9.69	30.0	µg/L	50	F207286	2G29003	07/28/12	EPA 200.8 Mod	
Silver	ND	0.060	0.200	µg/L	10	F207286	2G29003	07/29/12	EPA 200.8 Mod	U
Sodium	**5690000**	5750	100000	µg/L	5000	F207298	2G31007	07/30/12	EPA 200.8 Mod	
Zinc	ND	0.82	10.0	µg/L	50	F207286	2G29003	07/28/12	EPA 200.8 Mod	U

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MATRIX DUPLICATES/TRIPLICATES

SOURCE: 1207333-01

Batch: F208015 **Sequence:** 2H02011

Preparation: BrCl Oxidation **Lab Number:** F208015-DUP1

Analyte	Sample Concentration ng/L	Duplicate Concentration ng/L	MRL	% RPD	RPD Limit	Method	Notes
Mercury	44.31	39.16	5.05	12.3	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207333-01

Batch: F207286 **Sequence:** 2G29003

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207286-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Magnesium	30230	252.50	29900	-129	70 - 130	EPA 200.8 Mod	QM-02
Nickel	84.45	4.0400	86.33	46.7	70 - 130	EPA 200.8 Mod	QM-02
Copper	0.72	4.0400	4.28	88.0	70 - 130	EPA 200.8 Mod	
Zinc	6.11	10.100	22.96	167	70 - 130	EPA 200.8 Mod	QM-07
Arsenic	4.54	15.150	18.44	91.7	70 - 130	EPA 200.8 Mod	
Selenium	44.57	30.300	66.30	71.7	70 - 130	EPA 200.8 Mod	
Silver	ND	1.5150	1.375	90.7	70 - 130	EPA 200.8 Mod	
Cadmium	0.913	0.80800	1.465	68.4	70 - 130	EPA 200.8 Mod	QM-07
Lead	ND	1.5150	1.335	88.1	70 - 130	EPA 200.8 Mod	

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	252.50	29980	-100	0.245	70 - 130	20	EPA 200.8 Mod	QM-02
Nickel	4.0400	88.04	88.8	1.95	70 - 130	20	EPA 200.8 Mod	
Copper	4.0400	4.12	84.1	3.76	70 - 130	20	EPA 200.8 Mod	
Zinc	10.100	17.47	112	27.2	70 - 130	20	EPA 200.8 Mod	QR-08
Arsenic	15.150	20.42	105	10.2	70 - 130	20	EPA 200.8 Mod	
Selenium	30.300	70.73	86.3	6.47	70 - 130	20	EPA 200.8 Mod	
Silver	1.5150	1.320	87.1	4.09	70 - 130	20	EPA 200.8 Mod	
Cadmium	0.80800	1.430	64.1	2.41	70 - 130	20	EPA 200.8 Mod	QM-07
Lead	1.5150	1.407	92.9	5.27	70 - 130	20	EPA 200.8 Mod	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207333-01RE1

Batch: F207286 **Sequence:** 2G29003

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207286-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Calcium	1318000	750.00	1302000	-2080	70 - 130	EPA 200.8 Mod	QM-02

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Calcium	750.00	1327000	1270	1.91	70 - 130	20	EPA 200.8 Mod	QM-02

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207333-01

Batch: F207286 **Sequence:** 2G29003

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207286-MS/MSD3

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Magnesium	30230	101000	123100	92.0	70 - 130	EPA 200.8 Mod	AS
Nickel	84.45	1262.5	1204	88.7	70 - 130	EPA 200.8 Mod	AS
Copper	0.72	1262.5	1111	87.9	70 - 130	EPA 200.8 Mod	AS
Zinc	6.11	2525.0	2242	88.5	70 - 130	EPA 200.8 Mod	AS
Arsenic	4.54	1010.0	981.6	96.7	70 - 130	EPA 200.8 Mod	AS
Selenium	44.57	1010.0	955.6	90.2	70 - 130	EPA 200.8 Mod	AS
Silver	ND	50.500	42.58	84.3	70 - 130	EPA 200.8 Mod	AS
Cadmium	0.913	101.00	89.22	87.4	70 - 130	EPA 200.8 Mod	AS
Lead	ND	252.50	225.8	89.4	70 - 130	EPA 200.8 Mod	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	101000	122800	91.7	0.264	70 - 130	20	EPA 200.8 Mod	AS
Nickel	1262.5	1212	89.3	0.694	70 - 130	20	EPA 200.8 Mod	AS
Copper	1262.5	1109	87.8	0.188	70 - 130	20	EPA 200.8 Mod	AS
Zinc	2525.0	2269	89.6	1.22	70 - 130	20	EPA 200.8 Mod	AS
Arsenic	1010.0	987.2	97.3	0.560	70 - 130	20	EPA 200.8 Mod	AS
Selenium	1010.0	966.4	91.3	1.13	70 - 130	20	EPA 200.8 Mod	AS
Silver	50.500	43.83	86.8	2.89	70 - 130	20	EPA 200.8 Mod	AS
Cadmium	101.00	90.27	88.5	1.17	70 - 130	20	EPA 200.8 Mod	AS
Lead	252.50	228.6	90.5	1.20	70 - 130	20	EPA 200.8 Mod	AS

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207333-01RE1

Batch: F207286 **Sequence:** 2G29003

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207286-MS/MSD4

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Calcium	1318000	10100000	11230000	98.1	70 - 130	EPA 200.8 Mod	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Calcium	10100000	11140000	97.2	0.807	70 - 130	20	EPA 200.8 Mod	AS

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207333-01RE4

Batch: F207298 **Sequence:** 2G31007

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207298-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Chromium	3.56	7.0700	10.91	104	85 - 115	EPA 200.8 Mod	

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Chromium	7.0700	11.47	112	4.97	85 - 115	20	EPA 200.8 Mod	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207333-01RE3

Batch: F207298 **Sequence:** 2G31007

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207298-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Sodium	5690000	505.00	5644000	-9220	75 - 125	EPA 200.8 Mod	QM-02

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	505.00	5955000	52500	5.37	75 - 125	20	EPA 200.8 Mod	QM-02

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207333-01RE4

Batch: F207298 **Sequence:** 2G31007

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207298-MS/MSD3

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Chromium	3.56	1010.0	1090	108	85 - 115	EPA 200.8 Mod	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Chromium	1010.0	1094	108	0.417	85 - 115	20	EPA 200.8 Mod	AS

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207333-01RE3

Batch: F207298 **Sequence:** 2G31007

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207298-MS/MSD4

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Sodium	5690000	10100000	16510000	107	75 - 125	EPA 200.8 Mod	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	10100000	16410000	106	0.555	75 - 125	20	EPA 200.8 Mod	AS

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207333-01RE5

Batch: F207311 **Sequence:** 2H05004

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207311-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Molybdenum	25.92	2.0200	27.26	66.4	70 - 130	EPA 200.8 Mod	QM-02

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Molybdenum	2.0200	27.67	86.6	1.49	70 - 130	20	EPA 200.8 Mod	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207333-01RE5

Batch: F207311 **Sequence:** 2H05004

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207311-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Molybdenum	25.92	505.00	526.8	99.2	70 - 130	EPA 200.8 Mod	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Molybdenum	505.00	531.4	100	0.878	70 - 130	20	EPA 200.8 Mod	AS

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207333-01

Batch: F208015 **Sequence:** 2H02011

Preparation: BrCl Oxidation **Lab Number:** F208015-MS/MSD1

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	44.31	102.00	142.3	96.0	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	102.00	139.5	93.3	1.94	71 - 125	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207391-02

Batch: F208015 **Sequence:** 2H02011

Preparation: BrCl Oxidation **Lab Number:** F208015-MS/MSD2

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	86.10	204.00	274.6	92.4	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	204.00	286.3	98.1	4.16	71 - 125	24	EPA 1631E	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F207286 **Sequence:** 2G29003

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207286-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Magnesium	250.00	222.3	88.9	85 - 115	EPA 200.8 Mod	
Calcium	1500.0	1437	95.8	85 - 115	EPA 200.8 Mod	
Nickel	4.0000	3.56	89.1	85 - 115	EPA 200.8 Mod	
Copper	4.0000	3.72	93.0	85 - 115	EPA 200.8 Mod	
Zinc	10.000	9.39	93.9	85 - 115	EPA 200.8 Mod	
Arsenic	15.000	13.70	91.3	85 - 115	EPA 200.8 Mod	
Selenium	30.000	29.62	98.7	85 - 115	EPA 200.8 Mod	
Silver	1.5000	1.388	92.5	85 - 115	EPA 200.8 Mod	
Cadmium	0.80000	0.738	92.3	85 - 115	EPA 200.8 Mod	
Lead	1.5000	1.437	95.8	85 - 115	EPA 200.8 Mod	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	250.00	224.9	90.0	1.18	85 - 115	20	EPA 200.8 Mod	
Calcium	1500.0	1438	95.8	0.0771	85 - 115	20	EPA 200.8 Mod	
Nickel	4.0000	3.68	92.1	3.34	85 - 115	20	EPA 200.8 Mod	
Copper	4.0000	3.78	94.6	1.65	85 - 115	20	EPA 200.8 Mod	
Zinc	10.000	9.45	94.5	0.688	85 - 115	20	EPA 200.8 Mod	
Arsenic	15.000	14.15	94.3	3.23	85 - 115	20	EPA 200.8 Mod	
Selenium	30.000	28.91	96.4	2.43	85 - 115	20	EPA 200.8 Mod	
Silver	1.5000	1.404	93.6	1.14	85 - 115	20	EPA 200.8 Mod	
Cadmium	0.80000	0.729	91.1	1.30	85 - 115	20	EPA 200.8 Mod	
Lead	1.5000	1.450	96.7	0.898	85 - 115	20	EPA 200.8 Mod	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F207298 **Sequence:** 2G31007

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207298-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Sodium	500.00	474	94.8	80 - 120	EPA 200.8 Mod	
Chromium	7.0000	6.85	97.8	85 - 115	EPA 200.8 Mod	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	500.00	461	92.3	2.71	80 - 120	20	EPA 200.8 Mod	
Chromium	7.0000	7.19	103	4.84	85 - 115	20	EPA 200.8 Mod	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F207311 **Sequence:** 2H05004

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F207311-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Molybdenum	2.0000	1.86	93.2	85 - 115	EPA 200.8 Mod	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Molybdenum	2.0000	1.86	92.8	0.408	85 - 115	20	EPA 200.8 Mod	

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Liz Siska

Liz Siska, Project Manager

FRONTIER
GLOBAL SCIENCES

11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F208015
Preparation: BrCl Oxidation
Sequence: 2H02011
Lab Number: F208015-BS/BSD1
LCS Source: LCS

Analyte	Spike Added (ng/L)	LCS Concentration (ng/L)	LCS % Recovery	Recovery Limits	Method	Notes
Mercury	15.679	15.08	96.2	80 - 120	EPA 1631E	

Analyte	Spike Added (ng/L)	LCSD Concentration (ng/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	15.679	14.83	94.6	1.62	80 - 120	24	EPA 1631E	

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Fx: 425-686-3096

PREPARATION BLANKS

Instrument: ICPMS-6

Sequence: 2G29003

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F207286-BLK1	Magnesium	1.3	2.5	µg/L	F207286	EPA 200.8 Mod	U
F207286-BLK1	Calcium	3	40	µg/L	F207286	EPA 200.8 Mod	U
F207286-BLK1	Nickel	0.01	0.10	µg/L	F207286	EPA 200.8 Mod	U
F207286-BLK1	Copper	0.02	0.10	µg/L	F207286	EPA 200.8 Mod	U
F207286-BLK1	Zinc	0.17	0.20	µg/L	F207286	EPA 200.8 Mod	U
F207286-BLK1	Arsenic	-0.04	0.15	µg/L	F207286	EPA 200.8 Mod	U
F207286-BLK1	Selenium	0.21	0.60	µg/L	F207286	EPA 200.8 Mod	U
F207286-BLK1	Silver	0.0009	0.020	µg/L	F207286	EPA 200.8 Mod	U
F207286-BLK1	Cadmium	0.009	0.020	µg/L	F207286	EPA 200.8 Mod	U
F207286-BLK1	Lead	0.005	0.040	µg/L	F207286	EPA 200.8 Mod	U

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PREPARATION BLANKS

Instrument: ICPMS-6

Sequence: 2G31007

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F207298-BLK1	Sodium	0.3	20	µg/L	F207298	EPA 200.8 Mod	U
F207298-BLK1	Chromium	-0.001	0.10	µg/L	F207298	EPA 200.8 Mod	U

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PREPARATION BLANKS

Instrument: Hg2600-2

Sequence: 2H02011

Preparation: BrCl Oxidation

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F208015-BLK1	Mercury	0.03	0.50	ng/L	F208015	EPA 1631E	U
F208015-BLK2	Mercury	0.02	0.50	ng/L	F208015	EPA 1631E	U
F208015-BLK3	Mercury	0.03	0.50	ng/L	F208015	EPA 1631E	U
F208015-BLK4	Mercury	0.07	0.50	ng/L	F208015	EPA 1631E	U, QB-04

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PREPARATION BLANKS

Instrument: ICPMS-6 **Sequence:** 2H05004

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F207311-BLK1	Molybdenum	0.05	0.12	µg/L	F207311	EPA 200.8 Mod	U

Frontier Global Sciences, Inc.

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Notes and Definitions

U	Analyte included in the analysis, but not detected
R-05	The sample was diluted due to the presence of high levels of non-target analytes or particulates resulting in elevated reporting limits.
QR-08	The RPD value for the MS/MSD was outside of acceptance limits. Batch QC acceptable based on matrix duplicate and/or LCS/LCSD RPD values within control limits.
QM-07	The spike recovery was outside control limits for the MS and/or MSD. The batch was accepted based on LCS and LCSD recoveries within control limits and, when analysis permits, acceptable AS/ASD.
QM-02	The MS and/or MSD recoveries outside acceptance limits, due to spike concentration less than 1 times the sample concentration. The batch was accepted based on LCS and LCSD recoveries within control limits and, when analysis permits, acceptable AS/ASD.
QB-04	The blank was preserved to 2% BrCl rather than 1%. The control limit for blanks preserved to greater than 1% BrCl is the preservation percentage multiplied by the MRL.
FB-1631	Required equipment/field/filter blank not submitted by the client. The sample has been analyzed according to 1631E, but does not meet 1631E criteria
AS	This MS and/or MSD is an analytical spike and/or an analytical spike duplicate.
DET	Analyte Detected
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
ND	Analyte Not Detected at or above the reporting limit
wet	Sample results reported on a wet weight basis
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
RSD	Relative Standard Deviation

Frontier Global Sciences, Inc.

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Liz Siska

Liz Siska, Project Manager

CHAIN-OF-CUSTODY RECORD

112435

32

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

SAMPLE I.D.	SAMPLING DATE/TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE/TIME	MATRIX (SEE BELOW)	GRAB/*COMPOSITE	VOC: 524.2 / 524.2 BTEX / 524.2 MTBE ONLY	VOC: 8260B 624 VTICS / 1,4 DIOXANE EDB DBCP	VOC: 8021B BTEX HALOS	VOC: 8015B GRO MEGRO MAVPH	SVOC: 8270C 625 SVTICS / ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015B DRO MEDRO MAEPH	SVOC: PEST 608 PCB 608 / PEST 8081A PCB 8082	SVOC: OIL & GREASE 1664 TPH 1664	TCLP: TCLP 1311 ABN METALS / VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW)	METALS: TOTAL METALS (LIST BELOW)	INORGANICS: TS (TSS) (TDS) SPEC. CON.	INORGANICS: BR CL F SO_4 / NO_2 NO_3 NO_3/NO_2	INORGANICS: (BOD) CBOD T. ALK.	INORGANICS: TKN NH_3 T. PHOS.	INORGANICS: PH T. RES CHLORINE	INORGANICS: COD PHENOLS TOC	INORGANICS: TOTAL CYANIDE TOTAL SULFIDE	INORGANICS: REACTIVE CYANIDE REACTIVE SULFIDE / FLASHPOINT IGNITABILITY	MICRO: T. COLIFORM E. COLI / F. COLIFORM	MICRO: ENTEROCOCCI / HETEROTROPHIC PLATE COUNT	OTHER	OTHER	OTHER	# OF CONTAINERS	NOTES MEOH VIAL #
~~Final Effluent~~	7/19/2012 19:30	WW	G												X	X		X											2	
A-Stream Softened																														
MATRIX: A-AIR; S-SOIL; GW-GROUND WATER; SW-SURFACE WATER; DW-DRINKING WATER; WW-WASTE WATER. PRESERVATIVE: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH															-	-		-												

PROJECT MANAGER: Paul Pepler

COMPANY: GZA GeoEnvironmental, Inc

ADDRESS: 380 Harvey Road

CITY: Manchester STATE: NH ZIP: 03103

PHONE: 603-232-8717 EXT.:

FAX: 603-624-9463

E-MAIL: paul.pepler@gza.com

SITE NAME: ~~Wastewater Analysis~~ TSNH - MK

PROJECT #:

STATE: (NH) MA ME VT OTHER:

REGULATORY PROGRAM: **NPDES:** RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:

QUOTE #: PO #:

DATE NEEDED:

TEMP. 6 °C ICE? (YES) NO

QA/QC REPORTING LEVEL A B C OR MA MCP PRESUMPTIVE CERTAINTY

REPORTING OPTIONS PRELIMS: (YES) OR NO IF YES: FAX OR (PDF)

ELECTRONIC OPTIONS NO FAX (E-MAIL PDF) EQUIS

METALS: 8 RCRA 13 PP FE, MN PB, CU

OTHER METALS: Se, Hg, As, Na, Cd, Cr (T), Cu, Ni, Mo, Ag, Zn, Pb

DISSOLVED METALS FIELD FILTERED? YES NO

NOTES: (IE: SPECIAL DETECTION LIMITS, BILLING INFO, IF DIFFERENT)

Subcontract Metals to FGS
Provide project specific MS/MSD for metals

SAMPLER(S): Ken Kroh

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
Ken Kroh	7/20/12	15:50	[signature]
[signature]	7/20/12	4:25	[signature]

PH - 7.61 TSNH

customer Requested Additional Ca & Mg

SITE HISTORY:

SUSPECTED CONTAMINATION:

FIELD READINGS:

TAM 7/24/12

Eastern Analytical, Inc.

professional laboratory & drilling services

Paul Pepler
GZA GeoEnvironmental, Inc. (NH)
380 Harvey Road
Manchester , NH 03103

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	112640
Client Identification:	PSNH-MK
Date Received:	7/27/2012

Dear Mr. Pepler :

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

Solid samples are reported on a dry weight basis, unless otherwise noted
< : "less than" followed by the reporting limit
> : "greater than" followed by the reporting limit
%R : % Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw, Lab Director	8.15.12	30
	Date	# of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **112640**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Temperature upon receipt (°C): 18 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
112640.01	Softened Stream A Wastewater	7/27/12	7/27/12	aqueous		Adheres to Sample Acceptance Policy
112640.02	Field Blank	7/27/12	7/27/12	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.

All results contained in this report relate only to the above listed samples.

References include:

1) EPA 600/4-79-020, 1983

2) Standard Methods for Examination of Water and Wastewater : Inorganics, 19th Edition, 1995; Microbiology, 20th Edition, 1998

3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB

4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

EAI ID#: **112640**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Sample ID: Softened Stream A Wastewater

Lab Sample ID:	112640.01
Matrix:	aqueous
Date Sampled:	7/27/12
Date Received:	7/27/12
Units:	ug/l
Date of Analysis:	7/30/12
Analyst:	BML
Method:	624
Dilution Factor:	1
Chloromethane	< 5
Vinyl chloride	< 2
Bromomethane	< 2
Chloroethane	< 5
Trichlorofluoromethane	< 5
Acrolein	< 50
Acetone	< 50
1,1-Dichloroethene	< 1
Methylene chloride	< 5
Acrylonitrile	< 50
Methyl-t-butyl ether(MTBE)	< 10
trans-1,2-Dichloroethene	< 2
Vinyl acetate	< 10
1,1-Dichloroethane	< 2
cis-1,2-Dichloroethene	< 2
2-Butanone(MEK)	< 10
Chloroform	< 2
1,1,1-Trichloroethane	< 2
Carbon tetrachloride	< 2
Benzene	< 1
1,2-Dichloroethane	< 2
Trichloroethene	< 2
1,2-Dichloropropane	< 2
Bromodichloromethane	< 2
2-Chloroethylvinylether	< 2
4-Methyl-2-pentanone(MIBK)	< 10
cis-1,3-Dichloropropene	< 2
Toluene	< 1
trans-1,3-Dichloropropene	< 2
1,1,2-Trichloroethane	< 2
2-Hexanone	< 10
Tetrachloroethene	< 2
Dibromochloromethane	< 2
Chlorobenzene	< 2
Ethylbenzene	< 1
mp-Xylene	< 1
o-Xylene	< 1
Styrene	< 1
Bromoform	< 2
1,1,2,2-Tetrachloroethane	< 2
1,3-Dichlorobenzene	< 1
1,4-Dichlorobenzene	< 1
1,2-Dichlorobenzene	< 1
4-Bromofluorobenzene (surr)	**92 %R**
1,2-Dichlorobenzene-d4 (surr)	**104 %R**
Toluene-d8 (surr)	**99 %R**

QC REPORT

EAI ID#: **112640**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 5	12 (62 %R)	13 (63 %R) (2 RPD)	7/30/2012	ug/l	0 - 273	20	624
Vinyl chloride	< 2	18 (88 %R)	18 (90 %R) (2 RPD)	7/30/2012	ug/l	0 - 251	20	624
Bromomethane	< 2	17 (83 %R)	17 (83 %R) (0 RPD)	7/30/2012	ug/l	0 - 242	20	624
Chloroethane	< 5	17 (84 %R)	18 (90 %R) (7 RPD)	7/30/2012	ug/l	14 - 230	20	624
Trichlorofluoromethane	< 5	21 (104 %R)	20 (102 %R) (2 RPD)	7/30/2012	ug/l	17 - 181	20	624
Acrolein	< 50	< 50 (77 %R)	< 50 (77 %R) (0 RPD)	7/30/2012	ug/l	40 - 160	20	624
Acetone	< 50	< 50 (60 %R)	< 50 (66 %R) (10 RPD)	7/30/2012	ug/l	40 - 160	20	624
1,1-Dichloroethene	< 1	16 (78 %R)	16 (78 %R) (0 RPD)	7/30/2012	ug/l	0 - 234	20	624
Methylene chloride	< 5	14 (70 %R)	15 (75 %R) (7 RPD)	7/30/2012	ug/l	0 - 221	20	624
Acrylonitrile	< 50	< 50 (66 %R)	< 50 (69 %R) (4 RPD)	7/30/2012	ug/l	40 - 160	20	624
Methyl-t-butyl ether(MTBE)	< 10	20 (83 %R)	20 (85 %R) (2 RPD)	7/30/2012	ug/l	70 - 130	20	624
trans-1,2-Dichloroethene	< 2	15 (77 %R)	15 (77 %R) (0 RPD)	7/30/2012	ug/l	54 - 156	20	624
Vinyl acetate	< 10	30 (126 %R)	30 (131 %R) (4 RPD)	7/30/2012	ug/l	40 - 160	20	624
1,1-Dichloroethane	< 2	18 (89 %R)	18 (92 %R) (3 RPD)	7/30/2012	ug/l	59 - 155	20	624
cis-1,2-Dichloroethene	< 2	18 (89 %R)	18 (89 %R) (0 RPD)	7/30/2012	ug/l	70 - 130	20	624
2-Butanone(MEK)	< 10	20 (83 %R)	20 (86 %R) (4 RPD)	7/30/2012	ug/l	40 - 160	20	624
Chloroform	< 2	19 (94 %R)	19 (95 %R) (1 RPD)	7/30/2012	ug/l	51 - 138	20	624
1,1,1-Trichloroethane	< 2	20 (98 %R)	20 (98 %R) (0 RPD)	7/30/2012	ug/l	52 - 162	20	624
Carbon tetrachloride	< 2	18 (89 %R)	18 (89 %R) (0 RPD)	7/30/2012	ug/l	70 - 140	20	624
Benzene	< 1	17 (87 %R)	18 (90 %R) (3 RPD)	7/30/2012	ug/l	37 - 151	20	624
1,2-Dichloroethane	< 2	17 (87 %R)	18 (92 %R) (6 RPD)	7/30/2012	ug/l	49 - 155	20	624
Trichloroethene	< 2	18 (89 %R)	18 (92 %R) (3 RPD)	7/30/2012	ug/l	71 - 157	20	624
1,2-Dichloropropane	< 2	18 (89 %R)	18 (92 %R) (3 RPD)	7/30/2012	ug/l	0 - 210	20	624
Bromodichloromethane	< 2	20 (99 %R)	20 (100 %R) (1 RPD)	7/30/2012	ug/l	35 - 155	20	624
2-Chloroethylvinylether	< 2	18 (92 %R)	19 (95 %R) (3 RPD)	7/30/2012	ug/l	0 - 305	20	624
4-Methyl-2-pentanone(MIBK)	< 10	20 (95 %R)	20 (99 %R) (4 RPD)	7/30/2012	ug/l	40 - 160	20	624
cis-1,3-Dichloropropene	< 2	19 (96 %R)	20 (98 %R) (2 RPD)	7/30/2012	ug/l	0 - 227	20	624
Toluene	< 1	19 (93 %R)	19 (94 %R) (1 RPD)	7/30/2012	ug/l	47 - 150	20	624
trans-1,3-Dichloropropene	< 2	17 (85 %R)	17 (87 %R) (2 RPD)	7/30/2012	ug/l	17 - 183	20	624
1,1,2-Trichloroethane	< 2	19 (94 %R)	20 (98 %R) (4 RPD)	7/30/2012	ug/l	52 - 150	20	624
2-Hexanone	< 10	20 (95 %R)	20 (99 %R) (4 RPD)	7/30/2012	ug/l	40 - 160	20	624
Tetrachloroethene	< 2	20 (100 %R)	20 (102 %R) (2 RPD)	7/30/2012	ug/l	64 - 148	20	624
Dibromochloromethane	< 2	19 (93 %R)	19 (95 %R) (2 RPD)	7/30/2012	ug/l	53 - 149	20	624
Chlorobenzene	< 2	19 (94 %R)	19 (95 %R) (1 RPD)	7/30/2012	ug/l	37 - 160	20	624
Ethylbenzene	< 1	20 (99 %R)	20 (99 %R) (0 RPD)	7/30/2012	ug/l	37 - 162	20	624
mp-Xylene	< 1	39 (96 %R)	39 (97 %R) (1 RPD)	7/30/2012	ug/l	70 - 130	20	624
o-Xylene	< 1	19 (95 %R)	19 (96 %R) (1 RPD)	7/30/2012	ug/l	70 - 130	20	624
Styrene	< 1	19 (97 %R)	20 (98 %R) (1 RPD)	7/30/2012	ug/l	70 - 130	20	624
Bromoform	< 2	19 (96 %R)	19 (97 %R) (1 RPD)	7/30/2012	ug/l	45 - 169	20	624
1,1,2,2-Tetrachloroethane	< 2	19 (93 %R)	19 (95 %R) (2 RPD)	7/30/2012	ug/l	46 - 157	20	624
1,3-Dichlorobenzene	< 1	19 (95 %R)	19 (95 %R) (0 RPD)	7/30/2012	ug/l	59 - 156	20	624
1,4-Dichlorobenzene	< 1	19 (95 %R)	19 (97 %R) (2 RPD)	7/30/2012	ug/l	18 - 190	20	624
1,2-Dichlorobenzene	< 1	19 (94 %R)	19 (95 %R) (1 RPD)	7/30/2012	ug/l	18 - 190	20	624
4-Bromofluorobenzene (surr)	90 %R	97 %R	97 %R	7/30/2012	% Rec	70 - 130		624
1,2-Dichlorobenzene-d4 (surr)	101 %R	100 %R	98 %R	7/30/2012	% Rec	70 - 130		624
Toluene-d8 (surr)	98 %R	101 %R	100 %R	7/30/2012	% Rec	70 - 130		624

QC REPORT

EAI ID#: **112640**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method

Samples were extracted and analyzed within holding time limits.
Instrumentation was calibrated in accordance with the method requirements.
The method blanks were free of contamination at the reporting limits.
Sample surrogate recoveries met the above stated criteria.
The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.
There were no exceptions in the analyses, unless noted.
*/! Flagged analyte recoveries deviated from the QA/QC limits. Any impact to data is addressed below.

LABORATORY REPORT

EAI ID#: **112640**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Sample ID:	Softened Stream A Wastewater
Lab Sample ID:	112640.01
Matrix:	aqueous
Date Sampled:	7/27/12
Date Received:	7/27/12
Units:	mg/L
Date of Extraction/Prep:	8/2/12
Date of Analysis:	8/2/12
Analyst:	LAS
Method:	1664A
Dilution Factor:	1
Oil & Grease (HEM)	< 5

QC REPORT

EAI ID#: **112640**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Batch ID: 634795-03018/A080212OG1661

Client Designation: **PSNH-MK**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Oil & Grease (HEM)	< 5	39 (98 %R)	36 (91 %R) (7 RPD)	8/2/2012	mg/L	78 - 114	18	1664A

Samples were extracted and analyzed within holding time limits.
Instrumentation was calibrated in accordance with the method requirements.
The method blanks were free of contamination at the reporting limits.
Sample surrogate recoveries met the above stated criteria.
The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.
There were no exceptions in the analyses, unless noted.
*/! Flagged analyte recoveries deviated from the QA/QC limits.

LABORATORY REPORT

EAI ID#: **112640**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Sample ID:	Softened Stream A Wastewater
Lab Sample ID:	112640.01
Matrix:	aqueous
Date Sampled:	7/27/12
Date Received:	7/27/12

			Analysis			
		Units	**Date**	**Time**	**Method**	**Analyst**
Chloride	**12000**	mg/L	8/01/12	10:27	4500CIE	KD
Cyanide Total	< 0.01	mg/L	8/01/12	15:00	4500CNE	KJR

QC REPORT

EAI ID#: **112640**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Chloride	< 1	24 (97 %R)	25 (100 %R) (3 RPD)	mg/L	8/1/12	90 - 110	20	4500CIE
Cyanide Total	< 0.01	0.24 (96 %R)	NA	mg/L	8/1/12	85 - 115	20	4500CNE

Samples were analyzed within holding times unless noted on the sample results page.
Instrumentation was calibrated in accordance with the method requirements.
The method blanks were free of contamination at the reporting limits.
The associated matrix spikes and/or Laboratory Control Samples met the above stated criteria.
Exceptions to the above statements are flagged or noted above or on the QC Narrative page.
*/! Flagged analyte recoveries deviated from the QA/QC limits.

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14 August 2012

Jeff Gagne
Eastern Analytical, Inc
25 Chenell Drive
Concord, NH 03301

RE: Merrimack Station 200.8

Enclosed are the analytical results for samples received by Frontier Global Sciences. All quality control measurements are within established control limits and there were no analytical difficulties encountered with the exception of those listed in the case narrative section of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kate Haney
Client Services Manager

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ANALYTICAL REPORT FOR SAMPLES

Laboratory: Frontier Global Sciences, Inc.
SDG:
Client: Eastern Analytical, Inc
Project: Merrimack Station 200.8

Sample ID	Lab ID	Matrix	Date Sampled	Date Received
112640.01 Softened Stream A	1207436-01	Water	27-Jul-12 14:20	31-Jul-12 11:35
112640.02 Field Blank	1207436-02	Water	27-Jul-12 14:15	31-Jul-12 11:35

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CASE NARRATIVE

SAMPLE RECEIPT

Two (2) water samples were received July 31st, 2012 at Frontier Global Sciences (FGS). The samples were received intact, on-ice within a cooler at 6.3 degrees Celsius.

SAMPLE PREPARATION AND ANALYSIS

Sample preparation and analysis for trace metals was performed in accordance with EPA Method 200.8.

Sample preparation and analysis for total mercury was performed in accordance with EPA Method 1631E.

ANALYTICAL ISSUES

Liquid spikes were prepared for every preparation as a measure of accuracy. All liquid spikes and certified reference material (if applicable) were within the control limits.

As an additional measure of the accuracy of the methods used and to check for matrix interference, matrix spikes (MS) and matrix spike duplicates (MSD) were digested and analyzed. All of the matrix spike recoveries were within the control limits.

A reasonable measure of the precision of the analytical methods is the relative percent difference (RPD) between a matrix spike recovery and a matrix spike duplicate recovery and between laboratory control sample recovery and laboratory control sample duplicate recoveries. All of the relative percent differences were within the control limits.

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CHAIN OF CUSTODY FORMS

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Chain of Custody Record & Laboratory Analysis Request: Air, Water, Sediments, Plant and Animal Tissue, Hydrocarbon & Other Samples

Page __ of __

1207436

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Bothell, WA 98011
Phone: 425-686-1996
Fax: 425-686-3096
info@FrontierGS.com
http://www.FrontierGS.com

Client: EASTERN ANALYTICAL INC	Contact: Jeff Gagne
Address: 25 CHENELL DRIVE CONCORD NH 03301	Phone: 603-228-0525
	E-mail:
Project Name	Contract/PO: 39198
Report To: SAME	Invoice To: Same
Address: SAME	Address: Same
Phone: 603-228-0525 Fax:	Phone: Fax:
E-mail: CustomerService@eailabs.com	E-mail:

FGS PM: LIZ BISKA
Date:
TAT (business days): 20 (std) 15 10 5 4 3 2 24 hrs.
(For TAT < 10 days, contact PM. Surcharges apply for expedited TAT)
Saturday delivery? ☐ Y ☐ N
(If yes, please contact PM)
EDD ☐ Y ☐ N
QA ☐ Standard ☐ High

No.	Engraved Bottle ID	Sample ID	# of Bottles	Matrix	Date & Time	Sampled By	Field Filtered (Y/N)	Field Preserved: HNO3 HCl BrCl Other (%)	Analyses Requested: Low Level Metals	Method 200.8 mod ICP-MS w/collision cell					Comments
1	112640.01	Softened Stream A WO	2		7/27/12 14:20				X						Ca, Mg, Na Hg (cold vapor)
2	112640.02	Field Blank	1		7/27/12 14:15				X						
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

For Laboratory Use Only

COC Seal: None	Comments: 1Z X46 599 13 9536 5179
Cooler Temp:	
Carrier: UPS	
VTSR: 1125	TID 3150
# of Coolers:	

Matrix Codes:
FW: Fresh Water
WW: Waste Water
SB: Sea and Brackish Water
SS: Soil and Sediment
TS: Plant and Animal Tissue
HC: Hydrocarbons
TR: Trap
OT: Other

Relinquished By:	Received By:	Received By:
N. Zink-Maillou (signature)	UPS	(signature)
Name: N Zink-Maillou	Name:	Name: (signature)
Organization:	Organization:	Organization: FGS
Date & Time:	Date & Time:	Date & Time: 7/31/12 1145
Tracking number:		

Sample Disposal:
☐ Return (shipping fees may apply)
☐ Standard Disposal – 30 Days after report
☐ Retain for ____ weeks after report (storage fees may apply)

By signing, you declare that you agree with FGS' terms and conditions, and that you authorize FGS to perform the specified analyses.

Customer Approval: N. Zink-Maillou Date: 7/30/12

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CHAIN OF CUSTODY FORMS

FGS Work Order: 1207436

Sample Receipt Checklist

Frontier Global Sciences

Client: Eastern Analytical Date & Time Received: 7/31/12 1145 Date Logged In: 7/31/12 Date Labeled: 7/31/12

Project: Merrimack 208 Received By: CD Logged By: CD Labeled By:

# of Coolers Received: 1 Samples Arrived By: X Shipping Service ___ Courier ___ Hand ___ Other (Specify:___)

Tracking/Airbill Number(s): UPS 1Z X46 599 13 9536 5179

Thermal Preservation: ___None (Ambient) ___Loose Ice X Gel/Blue Ice ___Other (Specify:___) Thermal Preservation Required: (Y)/ N

Cooler Information:	Y/N	Comments
The coolers do not appear to be tampered with:	Y	
Custody Seals are present and intact:	N	Not used
Custody seals signed by:	N/A	

Thermometer ID: 350	CF: +0.3°C			
Cooler 1: 6.5°C Y	Cooler 4: °C	Cooler 7: °C	Cooler 10: °C	
Cooler 2: °C	Cooler 5: °C	Cooler 8: °C	Cooler 11: °C	
Cooler 3: °C	Cooler 6: °C	Cooler 9: °C	Cooler 12: °C	

Chain of Custody:	Y/N	Comments
Sample ID/Description:	Y	
Date/Time of collection:	Y	
Sampled by:	N	
Preservation type:	N/A	
Requested analyses:	Y	
Required signatures:	Y	
Internal COC required:	N	

Sample Condition/Integrity:	Y/N	Comments
Sample containers intact:	Y	
Sample labels are present and legible:	Y	
Sample ID on container matches COC:	Y	
Correct sample containers used:	Y	
Samples received within holding times:	Y	
Sample volume sufficient for requested analyses:	Y	
Correct preservative used for requested analyses:	N/A	
pH of preserved samples verified and recorded:	N/A	

Client Contacted:___ Date/Time:___ Method:___

Anomalies/Non-conformances (attach additional pages if needed):

* Delivery was late; gelpacks mostly thawed upon arrival

Discussion/Resolution:

FGS Sample Receipt Checklist Revision 2; 07/09/2012

Frontier Global Sciences, Inc.

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ANALYTICAL RESULTS

112640.01 Softened Stream A

Matrix: Water **Laboratory ID:** 1207436-01

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
Calcium	**2460000**	535	7960	µg/L	200	F208014	2H05006	08/03/12	EPA 200.8	
Magnesium	**701000**	147	995	µg/L	500	F208124	2H13011	08/13/12	EPA 200.8	
Mercury	**29.9**	0.84	5.05	ng/L	10	F208032	2H06002	08/03/12	EPA 1631E	
Sodium	**4810000**	496	9950	µg/L	500	F208014	2H10005	08/09/12	EPA 200.8	

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ANALYTICAL RESULTS

112640.02 Field Blank

Matrix: Water **Laboratory ID:** 1207436-02

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
Calcium	ND	3	40	µg/L	1	F208014	2H05006	08/03/12	EPA 200.8	U
Magnesium	ND	0.3	2.0	µg/L	1	F208124	2H13011	08/13/12	EPA 200.8	U
Mercury	ND	0.08	0.50	ng/L	1	F208032	2H06002	08/03/12	EPA 1631E	U
Sodium	ND	1	20	µg/L	1	F208014	2H10005	08/09/12	EPA 200.8	U

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MATRIX DUPLICATES/TRIPLICATES

SOURCE: 1207282-01

Batch: F208032 **Sequence:** 2H06002

Preparation: BrCl Oxidation **Lab Number:** F208032-DUP1

Analyte	Sample Concentration ng/L	Duplicate Concentration ng/L	MRL	% RPD	RPD Limit	Method	Notes
Mercury	47.32	51.78	5.05	8.99	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02

Batch: F208014 **Sequence:** 2H05006

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208014-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Sodium	1687	505.00	2221	106	70 - 130	EPA 200.8	
Calcium	3021	1515.0	4521	99.0	70 - 130	EPA 200.8	

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	505.00	2227	107	0.241	70 - 130	20	EPA 200.8	
Calcium	1515.0	4525	99.3	0.0821	70 - 130	20	EPA 200.8	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02

Batch: F208014 **Sequence:** 2H05006

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208014-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Sodium	1687	20200	22380	102	70 - 130	EPA 200.8	AS
Calcium	3021	20200	24250	105	70 - 130	EPA 200.8	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	20200	22750	104	1.63	70 - 130	20	EPA 200.8	AS
Calcium	20200	23980	104	1.13	70 - 130	20	EPA 200.8	AS

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-01

Batch: F208032 **Sequence:** 2H06002

Preparation: BrCl Oxidation **Lab Number:** F208032-MS/MSD1

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	1.54	5.1000	6.60	99.3	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	5.1000	6.34	94.2	4.03	71 - 125	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207436-01

Batch: F208032 **Sequence:** 2H06002

Preparation: BrCl Oxidation **Lab Number:** F208032-MS/MSD2

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	29.89	81.600	103.3	89.9	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	81.600	107.4	95.1	3.96	71 - 125	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02RE2

Batch: F208124 **Sequence:** 2H13011

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208124-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Magnesium	785.0	252.50	1045	103	70 - 130	EPA 200.8	

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	252.50	1063	110	1.71	70 - 130	20	EPA 200.8	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1207373-02RE2

Batch: F208124 **Sequence:** 2H13011

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208124-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Magnesium	785.0	20200	22190	106	70 - 130	EPA 200.8	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	20200	22260	106	0.339	70 - 130	20	EPA 200.8	AS

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F208014 **Sequence:** 2H05006

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208014-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Sodium	500.00	448	89.6	85 - 115	EPA 200.8	
Calcium	1500.0	1513	101	85 - 115	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	500.00	447	89.4	0.269	85 - 115	20	EPA 200.8	
Calcium	1500.0	1520	101	0.457	85 - 115	20	EPA 200.8	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F208032
Preparation: BrCl Oxidation
Sequence: 2H06002
Lab Number: F208032-BS/BSD1
LCS Source: LCS

Analyte	Spike Added (ng/L)	LCS Concentration (ng/L)	LCS % Recovery	Recovery Limits	Method	Notes
Mercury	15.679	15.05	96.0	80 - 120	EPA 1631E	

Analyte	Spike Added (ng/L)	LCSD Concentration (ng/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	15.679	15.32	97.7	1.76	80 - 120	24	EPA 1631E	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F208124 **Sequence:** 2H13011

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F208124-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Magnesium	250.00	252.9	101	85 - 115	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Magnesium	250.00	250.8	100	0.796	85 - 115	20	EPA 200.8	

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PREPARATION BLANKS

Instrument: ICPMS-6

Sequence: 2H05006

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F208014-BLK1	Sodium	0.6	20	µg/L	F208014	EPA 200.8	U
F208014-BLK1	Calcium	0.5	40	µg/L	F208014	EPA 200.8	U

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PREPARATION BLANKS

Instrument: Hg2600-1 **Sequence:** 2H06002

Preparation: BrCl Oxidation

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F208032-BLK1	Mercury	0.02	0.50	ng/L	F208032	EPA 1631E	U
F208032-BLK2	Mercury	-0.02	0.50	ng/L	F208032	EPA 1631E	U
F208032-BLK3	Mercury	-0.02	0.50	ng/L	F208032	EPA 1631E	U
F208032-BLK4	Mercury	0.02	0.50	ng/L	F208032	EPA 1631E	QB-04, U
F208032-BLK5	Mercury	5.09	9.90	ng/L	F208032	EPA 1631E	QB-08, U

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PREPARATION BLANKS

Instrument: ICPMS-6 **Sequence:** 2H13011

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F208124-BLK1	Magnesium	0.6	2.0	µg/L	F208124	EPA 200.8	U

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Notes and Definitions

U	Analyte included in the analysis, but not detected
QB-08	The blank was preserved to 100% BrCl rather than 1%. The control limit for blanks preserved to greater than 1% BrCl is the preservation percentage multiplied by the MRL.
QB-04	The blank was preserved to 2% BrCl rather than 1%. The control limit for blanks preserved to greater than 1% BrCl is the preservation percentage multiplied by the MRL.
QB-02	The method blank and/or initial/continuing calibration blank contains analyte at a concentration above the MRL. However, the sample concentrations are less than the MRL.
AS	This MS and/or MSD is an analytical spike and/or an analytical spike duplicate.
DET	Analyte Detected
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
ND	Analyte Not Detected at or above the reporting limit
wet	Sample results reported on a wet weight basis
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
RSD	Relative Standard Deviation

Frontier Global Sciences, Inc.

Kate Haney, Client Services Manager

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Chain-of-Custody Record

112640

30

Bold Fields Required. Please Circle Requested Analysis.

				VOC				SVOC					TCLP	Metals		Inorganics								Micro		Other				
Sample I.D.	Sampling Date / Time *If Composite, Indicate Both Start & Finish Date / Time	Matrix (see below)	Grab/*Composite	524.2 / 524.2 BTEX	524.2 MTBE only / 8260B (624) VTICs / 1,4 Dioxane EDB DBCP	8021B BTEX Halos	8015B GRO MEGRO MAVPH	8270D 625 SVTICs / ABN A BN PAH	TPH8100 L1 L2	8015B DRO MEDRO MAEPH	Pest 608 PCB 608 / Pest 8081A PCB 8082	(Oil & Grease 1664) TPH 1664	TCLP 1311 ABN Metals / VOC Pest Herb	Dissolved Metals (list below)	Total Metals (list below)	TS TSS TDS Spec. Con.	Br (Cl) F SO_4 / NO_2 NO_3 NO_3NO_2	BOD CBOD T. Alk.	TKN NH_3 T. Phos. O. Phos.	pH T. Res. Chlorine	COD Phenols TOC DOC	(Total Cyanide) Total Sulfide	Reactive Cyanide Reactive Sulfide / Flashpoint Ignitability	Total Coliform E. Coli / Fecal Coliform	Enterococci Heterotrophic Plate Count				# of Containers	Notes MeOH Vial #
Softened Stream A WW	07/27/2012: 2:20	WW	G		X							X			X		X					X							9	

Matrix: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste water

Preservative: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

Project Manager: Paul Pepler

Company: GZA GeoEnvironmental, Inc.

Address: 380 Harvey Road

City: Manchester State: NH Zip: 03103

Phone: 603-232-8717 Ext.:

Fax:

E-Mail: paul.pepler@gza.com

Site Name: PSNH- MK

Project #:

State: (NH) MA ME VT Other:

Regulatory Program: NPDES: RGP POTW Stormwater or GWP, Oil Fund, Brownfield or Other:

Quote #: PO #:

Date Needed: Standard TAT

QA/QC Reporting Level A B C OR Presumptive Certainty

Reporting Options Prelims: (Yes) or No — If Yes: Fax or PDF

Electronic Options No Fax E-Mail (PDF) Equis

Temp. 18 °C
Ice? (Yes) No

Sampler(s): Paul Pepler, GZA

Relinquished By:	Date:	Time:	Received By:
[signature]	7/27/12	2:55	[signature]

Metals: 8 RCRA 13 PP Fe, Mn Pb, Cu

Other Metals: Ca, Hg (cold vapor), Mg, Na,

Dissolved Metals Field Filtered? Yes No

Notes: (ie: Special Detection Limits, Billing Info, If Different)
Please send metals to Frontier for analysis by Method 200.8 MOD (ICP-MS with Collision cell)

FIELD pH: 7.49

Site History:

Suspected Contamination:

Field Readings: